

# TEXTILE BULLETIN



Vol. 58

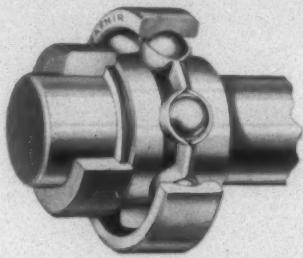
March 15, 1940

No. 2

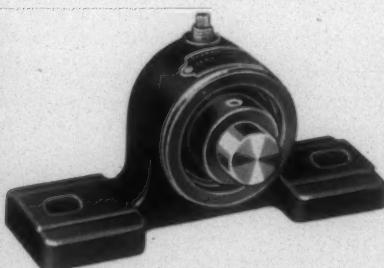
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MAKE V-BELTS  
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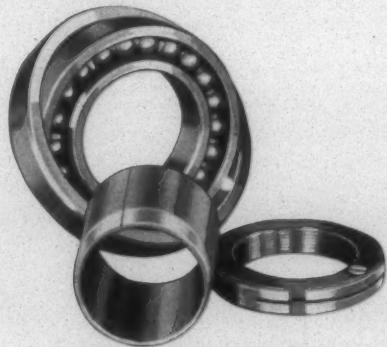
NEED GREASING



WIDE INNER RING BEARING



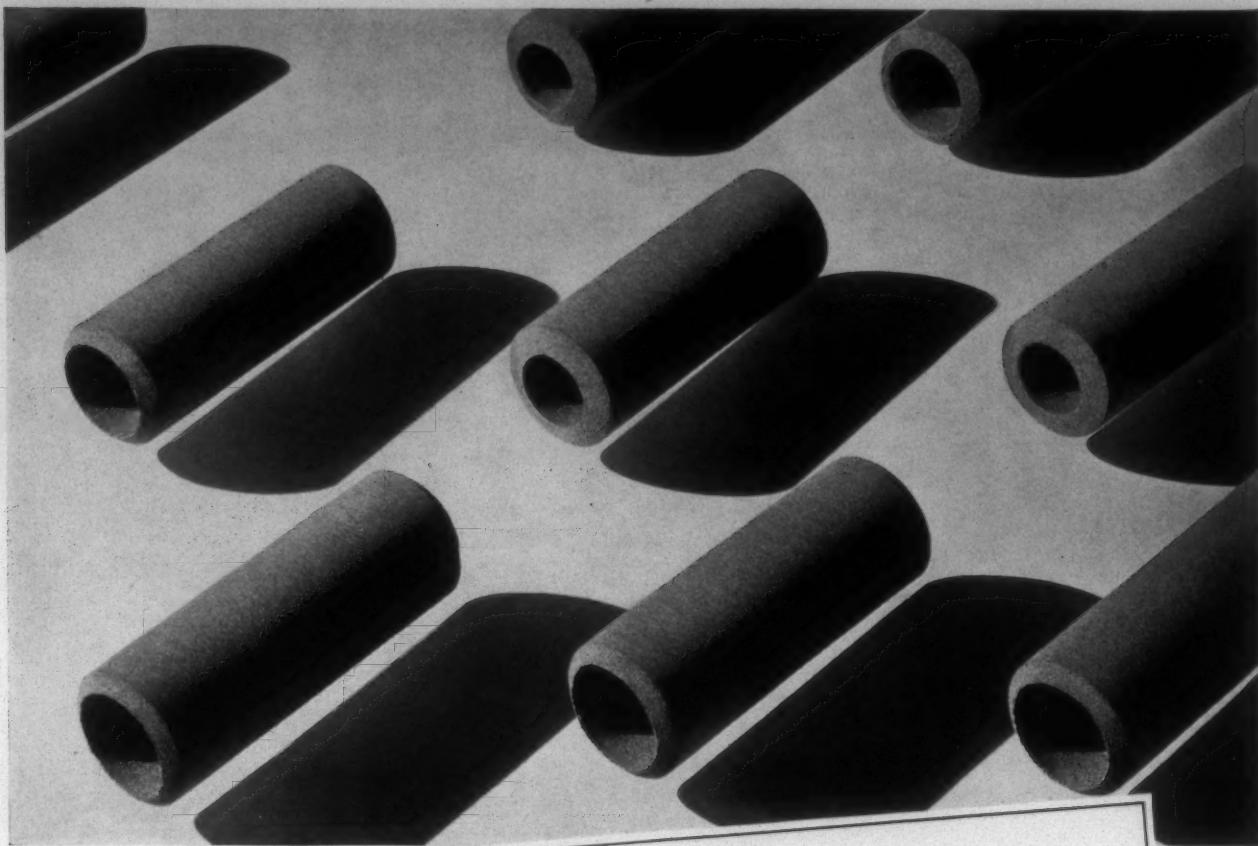
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DURING 1939, mills representing a total spindlage of 1,500,000 made the decision to equip with Armstrong's Seamless Cork Cots. This will bring the total to more than 8,500,000 active spindles running on Armstrong's Cork Cots.

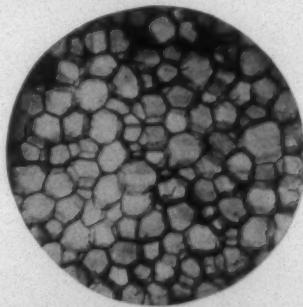
*Economy* is one of the chief reasons why so many mills are switching to cork. The initial cost of Armstrong's Cork Cots is no higher than that of other types of roll coverings. Your savings start with quicker, cheaper assembly. And your savings continue, for cork gives longer wear because it's tougher. Furthermore, you can rebuff these cots—make them like new—*three or four times*. Each rebuffing costs about *half a cent a roll!*

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Thus, the spun rayon industry takes another step forward with Crown Rayon. Complete technical information and data are available on request.



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**AQUASOL M** is a double sulphonated castor oil—not as resistant to acids as the

A. R. type but more suitable for certain uses where clarity of solution is desired in alkaline baths.

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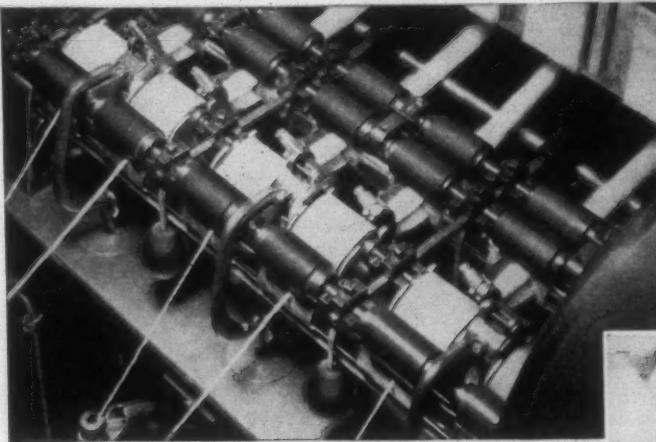


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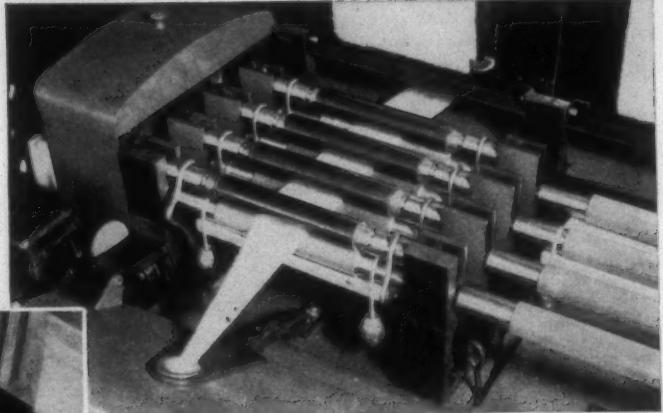
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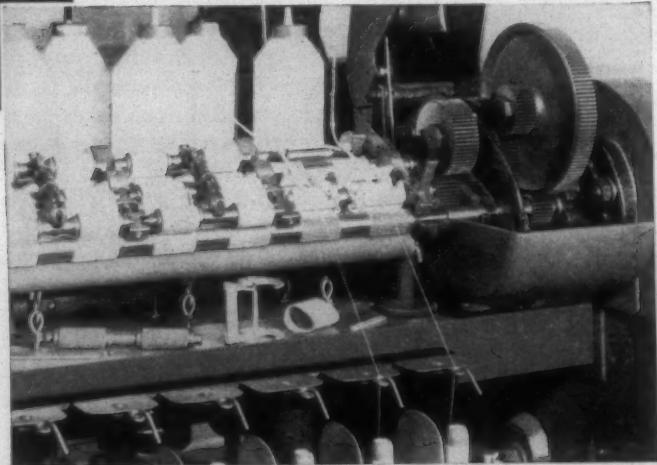
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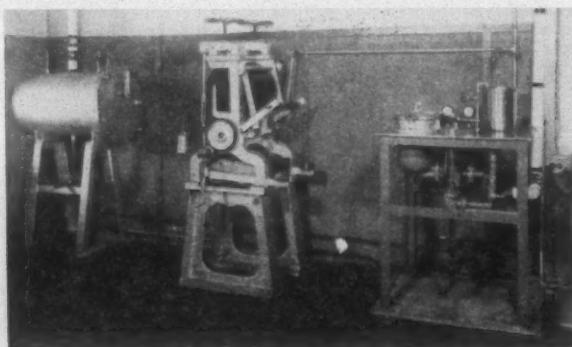
## Engineering Aspects of Textile Technology

By E. R. Schwartz\*

TEXTILES have been divided for convenience into three classes according to usage, as those materials intended primarily for dress, those intended for ornament, and those which are principally mechanical. For many years the engineer has been increasingly interested in mechanical textiles from the ventilating tube used in subway construction and in mines for underground to the airplane wing and the parachute overhead. At first his interest was largely confined to tensile strength and later to stretch properties. Now his interest has broadened to include not only extension of simple strength determinations to investigations of repeated stress and plastic flow phenomena and of simple stretch measurements extended to measurements of creep and creep recovery, but to the evaluation of permeability to fluids, thermal conductivity, electrical insulation, flexibility, abrasive resistance, crease resistance, compressional resilience, torsional equilibrium and the effect of many variables incident to

neers over generations of experience and experiment is of value to him. He recognizes the application of many engineering formulae to textile research and has been able to adapt much of engineering practice to his work, not only on fabrics and yarn but in the study of the ultimate structure of fibers as well.

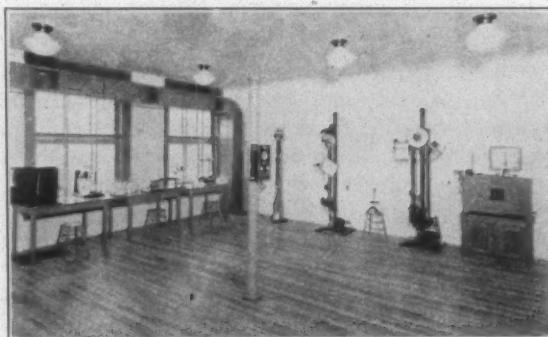
Nor is the matter wholly a contribution of the engineer to textile technology. Now as never before the textile research worker feels that he has something to contribute to the engineering profession. Strangely enough the most



testing and research. In this latter field, particularly, he has found that the application of the statistical method has become a necessity.

### Engineering Formulae and Textile Research

Increasingly it is borne in upon the textile technologist that these properties of textiles are after all the properties of matter in general and of engineering materials in particular. He realizes that the knowledge built up by engi-



important contribution likely to come from physical, chemical and optical research in the field of fiber structure. But perhaps it is not so strange in the last analysis. For centuries the engineer has patterned his construction after nature. The tree branch is a cantilever beam. The tree trunk is a column. The beaver dam is a close relative and only a small edition of the dam at Bouler Creek and Grand Coulee. In truth the cotton fiber is a structure held together with spiral reinforcing rods made up of fibrils and differing from the similarly reinforced concrete column essentially in the fact that nature has learned to far exceed the limits of recognized engineering practice by building columns several thousand times as long as they are in diameter in order to achieve a large measure of combined flexibility and permanence. In the cotton fiber nature has also succeeded in achieving one dream of the engineer—the combination of extreme lightness with extreme strength. Even though the density of cellulose as

\*Professor of Textile Technology, Massachusetts Institute of Technology, Cambridge, Mass.

found in cotton is very much less, for its cross section the cotton fiber is as strong as many of the metals.

#### Artificial Fibers

Not content with a study of the natural textile fibers man has dared to synthesize his own filaments. In so doing he has done more than to duplicate the chemical substitution of the natural fibers; he even hopes to produce fibers which will be similar architecturally. It is evident to the student of fiber structure that not only must he select his raw materials with as much care as to identify and specification of properties as would an engineer; but he must also build them into a proper arrangement as does the engineer. The finest steel procurable will not make a satisfactory bridge unless it is properly fabricated and properly placed. The purest of carbon, oxygen, hydrogen and nitrogen will not make a satisfactory fiber unless they are arranged properly into molecules and unless the molecules in turn are properly bonded and properly placed in the final structure.

As an aid to his investigation of the fabrication and placement of structural members the engineer resorts to photo-elastic analysis. He studies scale models of his structural elements made up of plastics and placed in a beam of polarized light to show the stress intensity and distribution. One of his major problems (now fortunately somewhat minimized by the advent of polaroid) is to produce a small scale model which will behave as would the full size specimen. Similarly the textile technologist uses polarized light to study the structure and strained condition of fibers. His problem is the opposite one, however, in the matter of difficulty. His normal specimen is so small as to require a microscope to see it and the investigator in this field has to enlarge his specimen optically in order to study it. Here again the advent of polaroid has simplified certain of his techniques. He has the advantage over the engineer that his actual material is itself transparent and rather highly doubly refractive.

Further use of the microscope for examination of the smallest resolvable detail of structure of fiber, yarn or fabric is paralleled by the use of the microscope by the investigator of wood, cement or metal. What the microscope has done for the metallurgist it is also doing for the fiber technician. What it has done for the builder it is has done for the spinner and weaver. As better and cheaper alloys have been made available for the engineer by microscopy intelligently interpreted in the light of chemistry and physics; so better tires, belts and ropes have been similarly made possible by the textile manufacturer for the engineer.

#### Textiles Similar To Metals

The heat treating of metals has provided a wealth of valuable material for the industrialist. In textiles moisture is to fiber what heat is to metal in industry. Fibers, too, may be annealed. Fibers may be "dry-worked" as metals are "cold-worked." Many of the problems of the textile manufacturer which have been enhanced by the coming of the rayon have been solved in large measure by adequate understanding and control of humidity during processing. Wet finishing of woolens and worsteds has

much in common with the "soaking" of a steel billet.

#### Study of Friction Important

Not only is a study of frictional phenomena important for an understanding of yarn structure but also because of the fact that yarns and fabrics are constantly being subjected to the frictional resistance offered by guides and other surfaces during and after manufacture. The engineer of a textile plant must of necessity deal with the passage of textile materials over and through a wide variety of materials and a surprising array of openings. In many instances this travel is at high speed and takes place while the textile is in anything but its strongest state. Anyone who has ever watched a high-speed warper wind thousands of yarns onto a giant spool or beam at the rate of hundreds of yards per minute realizes something of the problems involved in guiding each separate yarn into its proper place and at the correct tension. The handling of goods in a bleachery where festoons of fabric travel through a maze of pot eyes is another example.

#### Conduction, Convection and Radiation

Conduction, convection and radiation are terms familiar to every engineering student as a part of his work in thermodynamics. They are also important to the textile technologist because they mean so much to the ultimate consumer of textiles. Much effort has been directed toward the production of warmer and lighter fabrics. Now attention is being given to the manufacture of cooling materials. The problem is much more one of radiation and convection than of conduction. It has been repeatedly demonstrated that almost any kind of textile fiber can be used in a fabric and yet have the cloth show excellent resistance to the passage of heat. In a textile there are inherently a very large number of small air spaces or cells which, when air flows through them is minimized, constitute an excellent thermal insulator. Thus the porosity of the fabric is important when considered in connection with the permeability of the goods to air. Its permanence is also of considerable importance and here the merit of wool for heat insulating materials of textile nature becomes apparent. The wool fiber is inherently a resilient fiber and will maintain a structure of fabric of a sufficient constant degree of porosity to maintain highly efficient insulating value over long periods of time. Other fabrics made of differing types of fiber may initially have the correct porosity and permeability to be excellent insulators but, in general, they fail to endure over periods of service as long as will the woolen or worsted materials. Engineering is continually brought in contact with seeming anomalies. This instance is no exception. A material may be extremely porous and have a high permeability to air when the surfaces—or one of the surfaces—are exposed to moving air. But if this same material be placed in such a condition that it is surrounded by still air or otherwise has passage of air through it obstructed it may become an excellent non-conductor of heat. The greatest of care must be exercised in testing to be certain that conditions of service are reasonably duplicated. For this reason permeability tests go hand in hand with heat transmission tests.

(Continued on Page 34)

# The Use of Synthetic Organic Materials in Textile Finishing\*

By Dave E. Truax, Stein, Hall & Co., Inc.

UNTIL the past decade, the chief purpose of finishing materials has been to give the goods a definite weight and a somewhat nebulous property called hand. The materials used were starches and gums for hand, and mineral fillers, such as talc and clay, and inorganic chemicals to give the desired weight. None of these materials was expected to remain permanently in the goods, and was almost completely removed by the first washing.

The only really permanent effect the average finishing plant was able to obtain was the lustre due to mercerizing. This caustic treatment has been well understood for a great number of years, and has been practiced by almost all of the cotton finishers. However, the "hand" obtained by this treatment was not salable without the addition of further materials, usually a combination of starch and softener. Since these latter materials were not permanent, a marked change in the goods often occurred after the first washing.

This led to the development of the Heberlein Process for sheer fabrics. In this process, the goods are given one or more treatments with cold sulphuric acid, actually forming a thin layer of parchment around each fibre. When this process is used in conjunction with mercerizing, a very satisfactory finish with a good lustre results. Since the entire finish is due to a chemical change in the cotton, the results are very nearly permanent.

Even though this method of handling gave very pleasing results, it was still applicable only to the lighter fabrics, and it did not add any desirable properties to the cloth. The first step in improving the fabric itself was the introduction of urea-formaldehyde resins under the Tootell, Broadhurst, Lee Patent. This process gave fabrics with a degree of crush resistance which had not been obtainable previously.

The goods were prepared as usual and then sized with a solution of an urea-formaldehyde complex. It was necessary to exercise great care that the urea and formaldehyde had combined and polymerized to the correct point,



or it would not be possible to get the desired result. Usually stabilized pastes were used, but in a few cases the finisher made up the resin solution and allowed it to stand several hours before using. The addition of an acidic material was necessary to complete the polymerization of the resin to the finished stage.

After sizing, the goods were dried and then cured under temperatures of at least 300° F. This completed the polymerization but, as it did not remove the undesirable products formed in the reaction, it was necessary to give the goods a thorough washing before sending them out of the finishing plant.

Since it is necessary to add 12 to 14% of resin to the finished goods, and since the process is so complicated, it is necessary for the finishing plants to charge a high premium for this finish. A few cotton fabrics, such as sheetings, can be marketed economically in a crush resistant finish, but the bulk of cotton goods is sold at such a low price that anti-creasing is simply too expensive.

## Spun Rayons Need Crush Resistant Finish

However, the introduction of spun rayon materials gave a new life to crush resistant finishes. These fabrics, unless they contained very high percentages of wool, wrinkled very badly, and sagged very noticeably in a short time. The addition of urea-formaldehyde resin gave the fibre resiliency, and also gave the fabrics the rigidity necessary to stand up under wearing conditions.

In this case, price again becomes a factor. While two distinct advantages accrue from the use of a high percentage of urea-formaldehyde resin, a certain portion of the converting trade will give up one advantage if they can get the other at a lower price. Accordingly, large quantities of spun rayons are being sized with a urea-formaldehyde resin—starch mixture. Here the quantity of resin used is very much less than in the anti-crease work, since its sole purpose is to give wash resistance to the starch film. Very good wash fastness can be obtained in this manner by proper choice of resin and starch, and by careful handling in the finishing room. With this type of

\*Presented at meeting of Committee D-13, A. S. T. M., Charlotte, N. C., March 13th.

finish, curing is no longer necessary as a good drying will insure proper coupling of the resin and starch. Spun rayons finished in this way do not have much crush resistance, but the fabric is stabilized enough to prevent sagging when the garment is worn.

#### Resin-Starch on Cotton

This same resin-starch mixture is also used on cotton when certain definite effects are desired. If it is simply a case of giving some permanence to a starch finish, as in damask table cloths, this would be the cheapest method. Since the resin-starch film is relatively permanent, a very definite increase in strength may be produced by its application. Accordingly, when goods are woven and finished to definite strength specifications, and it is difficult for the finisher to obtain the required strength, the use of resin-starch mixtures is advantageous. This is particularly true on fabrics like sheetings where the goods must stand several washings without loss of strength.

The addition of the resin gives other properties to the starch, of which the most important are resistance to bacterial and mildew growth, and improved dielectric properties. Large quantities of shoe cloths are being finished in this manner, so that the lining of the shoe does not mildew or decompose nearly as badly as it would with a pure starch finish. And a corresponding amount of cotton goods for the electrical industry are being sized with resin-starch mixtures to take advantage of the improved electrical properties.

#### Resins for Resistance to Shrinking

While resin-starch mixtures give a certain degree of stability to fabrics, it is often necessary or desirable to go even further in this direction. The most striking development has been the use of fairly high percentages of resins to improve the resistance to shrinkage. It is obvious that numerous advantages will accrue if it is not necessary to shrink a fabrics to produce a non-shrink finish. The first item, of course, would be the number of yards the finisher would be able to deliver to the packing room, which can easily be 2 to 3% more than will be obtained with a pre-shrinking process. The width of the goods is also important, particularly on wide draperies, where it normally takes 54-inch grey goods to finish 48 inches after shrinking. With suitable handling, and the right type of resin application, 52-inch goods will give the same result. Those two inches may not seem so very important, but, besides a gain of 4%, there is a very nice saving in cost of grey goods simply because 52-inch width is a standard construction, and 54-inch is a specialty and commands a premium. And, on top of this, the royalty the finisher is required to pay on a patented shrinking process is a cent and a half a yard on these goods.

Shrinkage control on rayons and spun rayons has not progressed as far as on cotton goods, but numerous mills are experimenting along this line. For the moment, a more important property for rayons is slip-resistance. Fraying and pulling out at the seams has been one of the major defects in rayon fabrics. This can be largely overcome by the use of 1 to 2% of the correct resin, properly applied. No exact formulas can be given, as each fabric must be taken by itself. And, moreover, the same type of

rayon satin from one mill may not slip at all, and turn out to be a very bad offender from another grey mill. However, it is entirely possible to lock the interlaced threads so tightly that the fabric will break before slipping occurs, and the "hand" of the goods will be satisfactory or even the underwear trade.

#### Softening Agents Changed

The softening agents in use for finishing have also undergone remarkable changes. Until 25 years ago, the only softening agents in widespread use were soaps, oil emulsions, and glycerine. These have been almost entirely supplanted by sulphonated oils and tallow. While the softening and keeping properties of the latter products were much better, they did not add any new qualities to the fabrics. This led to the introduction, in the past few years, of so-called permanent softeners.

The majority of these permanent softeners are based on quaternary ammonium salts, in which at least one of the substitution products is a long chain, or fatty, aliphatic group. When these long chains are solubilized in the form of a soap, the metallic portion has a positive charge in solution, while the fatty portion has a negative charge. In a quaternary ammonium compound, the fatty portion is part of the compound with the positive charge. While the chemistry is not completely understood, it is known that when the slightly soluble fatty portion has this positive charge, it is easily exhausted from a water solution by coming in contact with cellulose. The bond between the cellulose and the softener, whether chemical or physical, is strong enough so that the goods will stand a severe washing with only a slight loss of the softening agent.

#### Used for Waterproofing

This permanence has given rise to a very ingenious method of treating goods to make them permanently waterproof. If a quaternary ammonium compound is made up so that one of the four groups on the nitrogen is a long chain aliphatic, and the three remaining groups can be removed in processing, the usual softening will take place at concentrations up to 1%. When larger amounts of the compound are used, very good permanent waterproofing effects may be produced.

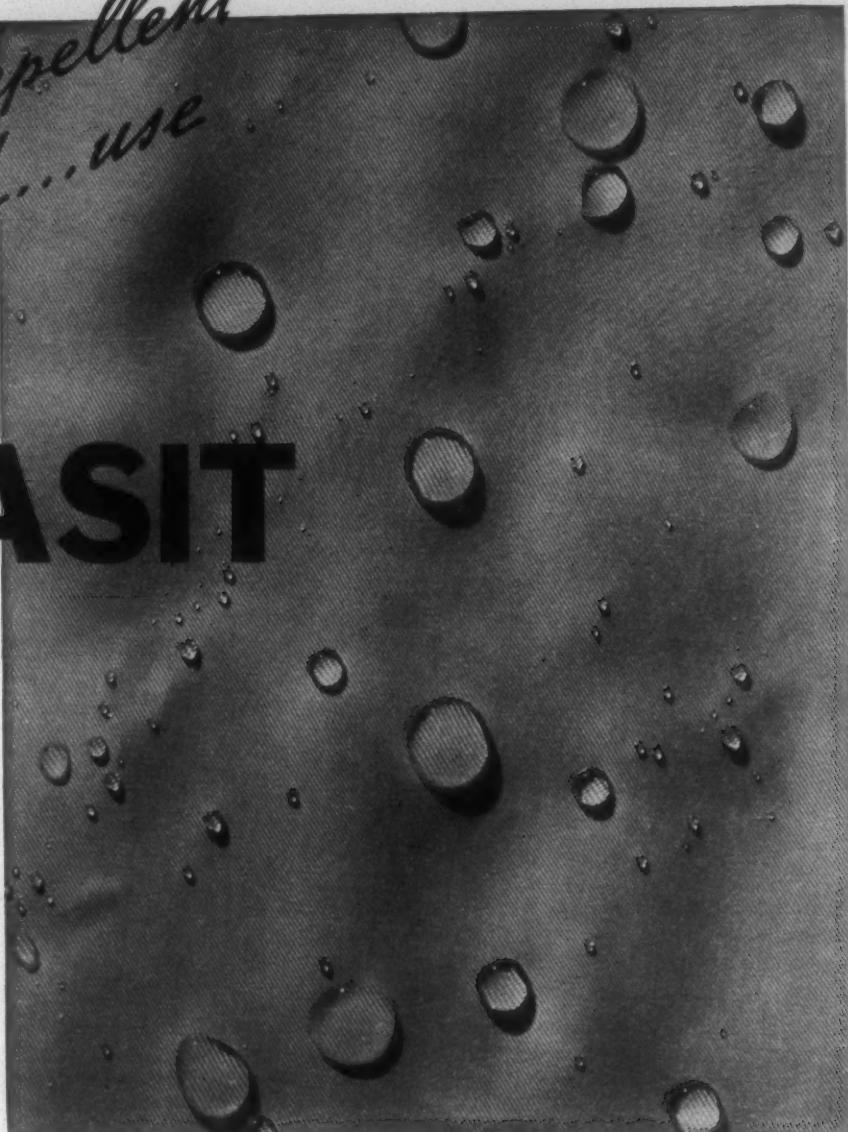
This process has been completely covered by patents, the licensees being required to handle their fabrics under carefully controlled conditions so that they will meet very exacting specifications. The solution of waterproofing material must be applied at about 100° F., and the goods dried at a low temperature, preferably not over 160° F. When thoroughly dry, they are then cured at a temperature of about 300° for three minutes. The care necessary in the drying operation is to prevent hydrolysis of the compound, with a subsequent decrease in waterproofing effectiveness. The curing after drying is simply to split off the smaller groups, leaving the fatty portion of the compound firmly attached to the material. A final wash removes any unreacted compounds, and leaves the fabric in a marketable condition.

Since both the chemistry and the handling of this type of material is rather complicated, the Patent Holding Co. has definite specifications that must be met before any

(Continued on Page 36)

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# Report On 1939's Progress In Measurement Of Cotton Fiber

**S**UBSTANTIAL progress was made in the development, application and refinement of technique and apparatus needed for more accurate and economical measurements of cotton fiber during the past year, according to the annual report of the chief of the Agricultural Marketing Service, Department of Agriculture.

In pointing out that a special effort was made toward greater distribution and application of the more important research findings, the report states:

"Important is the appreciable evidence that many of the developments are being applied and are yielding benefits in helping to solve problems of cotton-quality standardization, classification, and marketing, on the one hand, and of cotton-breeding and production improvement programs, on the other. Fiber and spinning studies were carried on co-operatively with the Bureau of Plant Industry, the Clemson Agricultural College of South Carolina, and the Agricultural and Mechanical college of Texas; ginning studies were carried on jointly with the Bureau of Agricultural Chemistry and Engineering.

## Color Studies

"Colorer investigations included continuation of the cotton-color survey, the studies of color stability in cotton held in storage, and the regional variety color studies. The regional variety studies disclosed that the color of cotton depends much more on environmental conditions than on variety. Color changes as related to temperature, rainfall, and other climatic conditions will be considered during the present year.

"Material progress was made toward automatic recording, through a cotton-scanning instrument, measurements of color, leaf and preparation factors. Another instrument is in process of development for automatically measuring and recording fiber lengths by means of a special photoelectric hook-up. Work with the fiber-length meter machine will be continued.

## Illuminants

"Considerable interest has been evidenced in the artificial daylight installation that was made in the Washington laboratories in 1937. Various illuminants are now being offered commercially as daylight substitutes, and technical studies have been instituted to compare the efficacy of certain of these proposed substitutes with lamps now used in the department's artificial-daylight room.

"Physical property studies have brought forth interesting conclusions as to the manner in which various fiber properties affect yarn strength in different ways, depend-

ing on variety, the comparative tests of cotton varieties by regions have been concluded for the 1935 crop and will be continued for the 1936 and 1937 crop years.

## Continuous Testing Stressed

"It would seem important, however, to have some more or less continuous testing of these properties from year to year of the principal varieties of American upland cottons grown across the Belt, and to issue periodic reports on the findings with respect to fiber properties and spinning qualities, much as the Indian Government is doing. This information would give the department and the various States a more adequate basis for detecting instability in and for improving American cottons; for making selections and rejections with respect to cotton breeding, production, single-variety communities, and other improvement programs, and for advising with the textile industry and the cotton trade as to the availability of supplies and sources of raw cotton with specified fiber and spinning properties.

"Studies of physical properties have embraced mechanical and X-ray examinations and tests over a large number of cottons. An analysis of the data from 100 lots of cotton, varying widely in measured strength, showed that strength of the fiber is highly dependent on structural arrangement of cellulose, which can be measured by an X-ray method. Since the structural arrangement has such an important relation to the strength and perhaps other properties of the fiber, it bids fair to be one of the more important criteria of quality in raw cottons. In addition, measurement of this property should be of great assistance in cotton-breeding and physiological studies.

## Cell Wall Studied

"With the purpose of finding a method for measuring maturity of cotton fibers that would avoid the tedious and time-consuming process of observing fibers individually under the microscope, a study was made of the change in chemical composition of the fiber with progressive thickening of the cell wall. These determinations can be made on aliquot portions of thoroughly mixed larger batches of fibers. The method automatically eliminates a number of sampling problems and difficulties commonly associated with the physical testing of fibers. It also simplifies and expedites the sampling procedures.

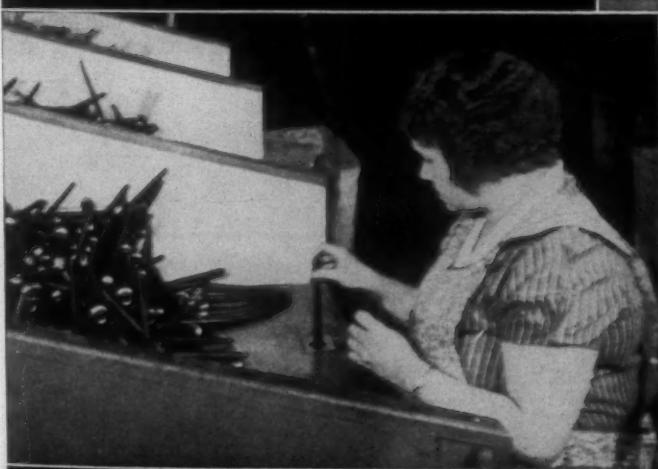
"The maturity of fibers is important largely according to the extent to which immaturity causes mill or manufacturing difficulties. These studies are being continued and will be extended to commercial samples of cotton lint."

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Spartanburg S C

## Mill Demands Improved Streets

Lexington, N. C.—Judge J. A. Rousseau will hear arguments in Superior Court here on the petition of the Dakotah Cotton Mill Co. for a mandamus to compel the City of Lexington to acquire streets and utilities in the mill village, and the answer of the city to the complaint, both of which have been filed with him.

The mill company contends the city should be required to take title to these and make compensation to the extent of approximately \$40,000. The mill and village were incorporated into the city in 1925, and the city denies the validity of the claims now raised and pleads the statutes of limitations it contends are applicable.

## New American Viscose Unit Plans Denied

Wilmington, Del.—William C. Appleton, president of the American Viscose Corp., denies that the corporation plans to build a new \$7,000,000 plant in the South. The reports, Mr. Appleton declared, probably had their basis in the company's present expansion in the construction of the plant at Front Royal, Va. Mr. Appleton added that no discussion of any new plant took place at the meeting.

## Sales of Mercerized Yarn Are Ahead of Last Year

Deliveries of mercerized cotton yarn for the first eight weeks of 1940 as reported by the Mercerizers' Association of America show an increase of 2% over the same period of 1939. In view of the fact that 1939 deliveries were well above the average, the 1940 increase is well received by the industry according to Dean Hill, president of the Association.

Further analysis reveals the fact that shipments for the first eight weeks of 1940 are 16% higher than the average for the first eight weeks of the six previous years. From present indications the industry expects a continuance of volume shipments for the next two or three months.

## Test Case of Wage and Hour Law

New Orleans, La.—The United States Fifth District Court of Appeals took under advisement, on February 28th, an attack on the wage-hour act by a group of Southern textile mills which objected to omission of differential rates for the South in the hourly wage fixed for the industry.

The Opp Cotton Mills, Inc., of Opp, Ala.; the R. D. Sanders Mills, of Mississippi, and 17 other petitioning mills challenged constitutionality of the act.

The mills attacked the act on the grounds that delegation of authority to the Industry Committee was a misuse of power under the constitution in that it permitted counsel of local production; that it violated the tenth amendment which reserved to the States powers not expressly delegated to Congress and that it violated the fifth amendment by depriving complainants of property without due process of law.

Pending decision in the case the petitioning mills are operating under a stay order granted by the court and are paying 30 cents per hour.

## Laundries Give Reason for Recent Textile Troubles

The use of certain new types of chlorine-absorbing substances in the finishing of cottons is resulting in the "serious discoloration and tendering of the fabrics," according to a bulletin just sent to members of the American Institute of Laundering, Joliet, Ill.

The difficulty, says the Institute, first came to the attention of laundries in connection with shirts while the bulletin speaks of it as "new type of shirt problem," the Institute believes that these particular finishes may also appear on "many types of cotton dress goods, and rayons, as well as on sheetings and pillow case fabrics."

"Already certain mill finishers have agreed to discontinue using finishing materials that possess this peculiar property," says the Institute, continuing:

"Shirt makers and finishers are being urged to adopt the starch-iodide or orthotolidine test to check every lot of mill goods, and to reject those which react positively to these tests. Several finishers are sending samples of impregnated fabrics to the Institute laboratories for testing. The Institute is now engaged in determining under just what laundering conditions the damage is likely to develop.

"Laundry owners can assist by applying the tests described to corrosively damaged cotton articles and, wherever a positive test is secured, calling the garment to the attention of the Institute's Department of Research and Textiles. In the meantime, the Institute will continue its studies with the hope of issuing a more complete report on the problem at a later date."

The bulletin further observes that "it is too early as yet to offer complete information on the problem," but goes on to say that "the following conclusions appear to be true."

"1. Cotton fabrics impregnated with certain finishing materials are tendered during pressing as a result of the interaction of hypochlorite solutions with these finishing materials and final conversion by the heat of pressing into hydrochloric acid. The limits of hypochlorite concentration within which this damage occurs are now in process of study.

"2. The damage occurs under home conditions of laundering wherein hypochlorite solutions are used, as well as in commercial laundering.

"3. Not all of the newer types of mill finish designed to give permanent softness, body or finish, are destructive.

"4. To determine whether a cotton fabric has developed this type of damage, spot the article either with a solution of orthotolidine (yellow to brown color indicates a positive test) and with starch-potassium iodide solution. In the latter case, a brown, blue, or black color indicates a positive test for the presence of chlorine-absorbing finishes.

"Note: To make a starch-iodide solution, dissolve 15 to 20 crystals of potassium iodide in 1 ounce of water and add to 2 ounces of cooked thin-boiling starch. Check this solution from time to time for decomposition.

"5. It is believed that these particular finishes may appear on many types of shirting, cotton dress goods, and rayons, as well as on sheetings and pillow case fabrics."



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U. S. PATENT NO. 2,174,173

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Amazing improvements, precision uniformity, and patented-process, produce new high peaks in quality as well as customer satisfaction. Tufferized Card Clothing has wires projecting to exactly the same length, and points lying in the same plane. When mounted on your cylinders there is no change or variation of position and you can set your rolls to closer limits.

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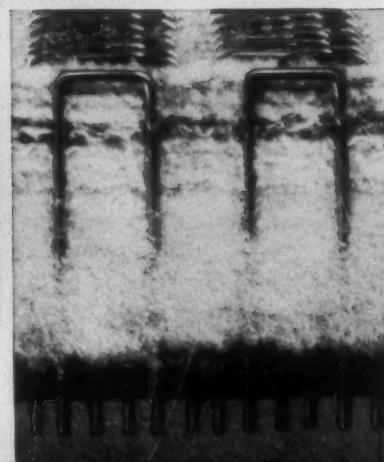
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*Southern Plants: Atlanta, Ga., Gastonia, N. C. Branch Offices: Philadelphia, Dallas  
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*Microphotograph shows how Tufferized Card Clothing wires seat square, flat, and firmly into the foundation with wires parallel... even in length... spaced uniformly*



SPEAKERS TABLE AT WEDNESDAY EVENING BANQUET

Left to Right—A. C. Clifford, Dave E. Truax, R. H. Brown, C. L. Warwick, Ben E. Douglas, R. W. Webb, H. J. Ball, F. S. Mapes, and W. K. Whitcomb.

## Committee D-13 of A. S. T. M. Has Successful Meeting in Charlotte

COMMITTEE D-13, textile committee of the American Society for Testing Materials, held a very successful meeting at the Charlotte Hotel, Charlotte, N. C., March 13th and 14th, with approximately 100 members and guests attending the sessions.

Meeting in the South for the first time in ten years, the Committee took up such subjects as cotton yarns and threads, glass fiber, presentation and interpretation of data, atmospheric conditions, bleaching, dyeing and finishing, tire fabrics, household and garment fabrics, cotton, rayon, testing machines, rayon fabrics, methods of testing, and heavy cotton fabrics.

In addition to the meetings of the various sub-committees, as listed in the above paragraph, there were two paper sessions, when papers were presented by Dave E. Truax, of Stein, Hall & Co., R. W. Webb, of the U. S. Department of Agriculture, Dorothy Nickerson, of the U. S. Department of Agriculture, Alexis Sommaripa, of duPont, and H. J. Ball, of Lowell Textile Institute.

Leading the various sub-committee meetings during the two-day session were the following: A. C. Clifford, Western Electric Co.; Dean Harvey, Westinghouse Electric Co.; A. G. Ashcroft, Alexander Smith & Sons Carpet Co.; R. H. Brown, Parks-Cramer Co.; W. M. Scott, U. S. Dept. of Agriculture; Martin Castricum, U. S. Rubber Co.; Ruth O'Brien, Bureau of Home Economics; Fred Noechel, Botany Worsted Co.; R. W. Webb, U. S. Dept. of Agriculture; H. DeWitt Smith, A. M. Tenney Associates; H. J. Ball, Lowell Textile Institute; Alexis Sommaripa, duPont; W. D. Appell, Bureau of Standards; B. L. Whitter, Mt. Vernon-Woodbury Mills.

### Officers Re-elected

At the business session, held on the afternoon of the 14th, the entire slate of officers were unanimously elected for another term, as follows: chairman, H. J. Ball, Lowell Textile Institute; vice-chairman, F. S. Mapes, General Electric Co., and R. H. Brown, Parks-Cramer Co.; vice-

chairman and secretary, W. H. Whitcomb, R. I. School of Design.

Committee D-13 was organized in 1915 and took up as its first problem the development of methods of testing cotton fabrics. The committee was the means of bringing together representatives of the producers and users of the mechanical fabrics and of greatly stimulating the development of methods of testing these products. The committee prepared tentative methods of testing cotton fabrics, which, in 1920, after five years' trial, were adopted in modified form as the Society's first standard on textile materials.

The activities of the committee were broadened to cover textile materials made from fibers other than cotton, including wool, rayon, silk, asbestos, and the bast fibers. The personnel of the committee was correspondingly enlarged. The broadened activities are reflected in the standards and tentative standards formulated by the committee. These now number thirty standards and twenty tentative standards. These various standards cover not only methods of test for textile materials but also tolerances within which the textile must come in order that it constitute a good delivery on contract. In addition to these test methods and tolerances, the committee has more recently undertaken the writing of specifications of textile materials for specific uses. These were prepared in response to a number of requests and cover such materials as tire cord, shaper tire fabrics, electrical tapes, asbestos textiles, household fabrics, etc.

The activities of Committee D-13 are conducted under the general rules and regulations of the Society, which are based upon long experience in the study of materials of engineering and the development of methods of testing and specifications. On the committee are represented both producers and consumers of the materials under discussion, this being a fundamental requirement in relation to

(Continued on Page 28)

## BETTER CORD— BETTER TIRES

Back in 1934, things were happening fast in the tire industry. New problems created by paved roads, heavy loads, high speeds and long runs caused fibers in old-fashioned cotton cords, held together by twist alone, to rub together under pressure, generating excessive heat when flexed under the load. Again flexing when the revolving wheel lifted successive portions of the tire from the road, the fibers slipped apart just as a tight glove slips off when one wriggles his fingers. Tires ran hot, expanded, blew out.

The tire industry was turning to other sources for material to solve its problems. Rayon, made of wood pulp and cotton waste, was offered as a substitute. Its use threatened to supplant almost ten per cent of the cotton farmers' American market.

Then, a researcher in a laboratory of the Bibb Manufacturing Company discovered a process whereby the gums or pectins in the cotton fibers are kept soft while the fibers are spun and twisted. When allowed to set, these gums cement the fibers so they will not rub together nor slip apart. Now tires made with this Bibb Heat Resistant Processed Cord run cooler—deliver mileage greater than was possible before its development.

These facts mean more to you than an interesting textile story. Tires containing Heat Resistant Processed Cords made by several reputable manufacturers are now available. The use of these tires can mean dollars and cents to you.

Write us for information.

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COMPANY  
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T H E D O W C H E M I C A L C O M P A N Y  
C H I C A G O  
D Y E S F O R M A S T E R D Y E R S

# Personal News

Hunter West has been appointed superintendent of the Clifton Mfg. Co., Clifton, S. C., succeeding T. C. Drew.

A. A. Drake, vice-president of the Bibb Mfg. Co., Macon, Ga., has been named president of the Central Georgia Boy Scout Council.

John H. Bateman, of Southern Worsted Co., Greenville, S. C., has been elected president of the Greenville Community Concert Association.

E. Blair Rice, president of the Blair Mills, Belton, S. C., and Mrs. Rice have returned from a vacation spent in Florida.

Paul L. Epley, formerly with M. Snower & Co., Opelika, Ala., is now overseer of weaving at the Micolas Cotton Mills, Opp, Ala.

Earle Stall, president of F. W. Poe Mfg. Co., is one of the seven new deacons of the First Presbyterian Church, Greenville, S. C.

Fred K. Nixon, general sales manager of the Riverside & Dan River Cotton Mills, Danville, Va., was recently elected a vice-president of the company.

John Robert Roy, Greenville, S. C., representative of B. S. Roy & Son Co., Worcester, Mass., textile machines, has been elected to the Rotary Club at Greenville.

A. E. Howell, formerly with Abbeville (S. C.) Mills, is now overseer of weaving at the Victor plant of Victor-Monaghan Co., Greer, S. C.

H. E. Aken has been elected a vice-president of Cannon Mills, Inc., in charge of yarn sales, with headquarters at Philadelphia. He has been with Cannon for 15 years.

T. A. Hightower, manager of the Addison plant of The Kendall Co., Edgefield, S. C., has been chosen president of the Edgefield County Men's Business Club.

C. C. Clinkscales, Clemson textile graduate now employed at Muscogee Mfg. Co., Columbus, Ga., and Miss Mary Cargill will be married on March 23rd.

E. Shaw Cunningham was recently elected president of the Dallas (Tex.) Cotton Mills, succeeding W. B. Marsh. He will continue to act as general manager.

Fred W. Symmes, president of Union-Buffalo Mills of South Carolina, has been re-elected as a member of the board of the Southern Bell Telephone & Telegraph Co.

J. H. Mayes, general manager of the Fitzgerald Cotton Mills, Fitzgerald, Ga., has been re-elected president of the Fitzgerald Federal Savings and Loan Association.

R. W. Schrimshire, assistant superintendent, has been promoted to superintendent of the Jordan Mills, Columbus, Ga.

John Land, formerly of the Kendall Mills, Charlotte, N. C., has arrived in Gastonia to take up his new duties as secretary and treasurer of Threads, Inc.

J. T. Rountree, superintendent of the Minneola Mfg. Co., at Gibsonville, N. C., has entered St. Leo's Hospital, Greensboro, N. C., for treatment.

Charles H. Stone, production manager of American Cyanamid & Chemical Corp., has accepted the chairmanship of the Charlotte Community Chest for 1940.

W. E. Mays, secretary of the Glenwood Mills, Easley, S. C., was stricken ill at the home of relatives at Waycross, Ga., but is reported to be much improved.

John H. Rodgers, of Norfolk, Va., president of the Hart Cotton Mills, of Tarboro, N. C., who died recently at his home at Norfolk, left an estate valued at \$2,146,000.

Russell Frye, formerly superintendent of the novelty and rayon yarn department of the Groves Thread Co., Gastonia, N. C., is now in the spinning department of the Chronicle Mills, Belmont, N. C.

Joseph J. Bradley, Huntsville cotton dealer and former general manager of the Merrimack Mfg. Co., has become a candidate for chairman of the Madison County (Ala.) Board of Commissioners.

Furman B. Pinson, of Greenville, S. C., formerly purchasing agent for Slater Mills, has accepted the office managership of the Carter Fabrics Corp. at South Boston, Va.

J. M. Bivens has resigned as head grinder in the card room of Edna Mills Corp., Reidsville, N. C., to return to his former position as card grinder at the Phenix Mills, No. 1, Kings Mountain, N. C.

Arthur G. Odell, president of the Kerr Bleaching & Finishing Works, Inc., Concord, N. C., has been elected chairman of the Salvation Army Advisory Board of Concord.

Henry McKelvie, agent for the Merrimack Mfg. Co., Huntsville, Ala., was a recent speaker at the Huntsville Rotary Club, where he discussed the need for diversified industries.

August W. Smith, Jr., assistant general manager of Brandon Corp., Greenville, S. C., has been named chairman of the 1940 campaign of the Greater Greenville Community Chest.

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# STARCHES

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## RESIN OR ROSIN ?

**Rosin:** *A residue from the distillation of crude pine tar—impure—opaque—variable in quality.*

**Resin:** *A synthetic material such as RHOPLEX or RHONITE, produced under controlled conditions to meet rigid specifications—crystal clear—free from impurities—uniform in quality.*

In textile finishing, do not confuse rosin compounds with synthetic resins, and particularly with

### Rhoplex and Rhonite Resins

Rosin-finishing agents are available, as well as compounds made from a wide variety of highly colored synthetic resins. But RHOPLEX and RHONITE RESINS, formulated specifically for textile applications, will consistently produce water-clear, brilliant, resilient, permanent finishes.

## RÖHM & HAAS CO., INC.

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## Robert R. West Resigns As President Of Riverside & Dan River Cotton Mills

Danville, Va.—Robert Rout West has resigned his post as president and treasurer of the Riverside & Dan River Cotton Mills, Inc. The resignation, presented at the regular monthly meeting of the board of directors, was accepted effective April 1st. The board appointed George W. Robertson, general superintendent of the mill, also a vice-president, as executive vice-president.

Mr. West had been affiliated with the 15 million dollar corporation for the past ten years. He came here from New England during the Schoolfield-Fitzgerald regime at the mills and subsequently was steadily promoted. With the death of the late H. R. Fitzgerald, he was named president.

Mr. Robertson, who was made executive vice-president, was general superintendent of the mills for the past 30 years. He played an active part in the expansion of the corporation, which now employs close to 10,000 persons, from small beginnings to one of the most highly capitalized industries in the South.

## Roy Noble Buys Complete Plant of Alfred Lagasse Co.

Roy Noble, New Bedford, Mass., manufacturer of all types of temple rolls, has purchased the entire plant machinery of Alfred Lagasse, 1079 Dwelly St., Fall River, Mass. Mr. Noble has transferred this machinery to his enlarged factory at New Bedford.

Mr. Lagasse, inventor of several temple roll patents and a veteran temple roll manufacturer, will continue with Mr. Noble as factory manager of their New Bedford plant.

John Batson, Box 51, Greenville, S. C., represents Roy Noble in the South.

## George Brackett, Jr., Joins du Pont Rayon

Frank H. Coker, district sales manager of the Rayon Division of E. I. du Pont de Nemours & Co., at Charlotte, N. C., has announced the recent employment of George Frederick Brackett, Jr., who has been with the sales department of Bliss Fabyan & Co. in New York for the past five years.

Mr. Brackett has already arrived in Charlotte, which will be his headquarters, and he will sell out of this office.

## I. B. Covington Establishes Memorial To Mother

I. B. Covington, vice-president and superintendent of the Wade Mfg. Co., Wadesboro, N. C., has established Room 307 on the third floor of the new Memorial Hospital in Charlotte, N. C., as a memorial to his mother, Mrs. Mary Angeline Covington.

The Charlotte Memorial Hospital has just been completed at a cost of more than \$1,000,000, and Mr. Covington's donation was made during a campaign to establish \$215,000 of memorials.

## M. E. Heard To Head Philadelphia Textile School

Philadelphia, Pa.—M. E. Heard, head of the Textile Engineering Department of Texas Technological College, Lubbock, Tex., has been appointed director of the Philadelphia Textile School.

The appointment, announced March 1st at an alumni banquet, takes effect in June with the retirement of Dr. Edward W. France, the present director. Heard began his textile training with the Lanett Mill of the West Point Mfg. Co., West Point, Ga., and is a graduate of Georgia Tech.

# VICTOR MILL STARCH

"THE WEAVER'S FRIEND"

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A circular seal with a laurel wreath border. Inside the wreath, the word "GUARANTEED" is at the top and "QUALITY" is at the bottom. In the center, there is a small illustration of a person, possibly a weaver, holding a staff.

**The Keever Starch Company, Columbus, Ohio**

MY JOB IS  
HELPING YOU



# SAVE MONEY

ON MAINTENANCE

My job is a mighty interesting one. I'm a field man for the National Lead Co., manufacturers of the famous Dutch Boy White-Lead. Every so often, I get invited by some well-known textile mill to look over the plant and the company houses. Purpose—to see if I can't cut down painting costs.

I don't make any recommendations until I've made a thorough check-up. Sometimes I run into painted surfaces that have cracked and scaled badly like the left-hand picture above. That means that the paint didn't have enough elasticity. It couldn't s-t-r-e-t-c-h. When the summer weather swelled up the wood, there was nothing for the paint to do but crack, and then scale off.

#### Someone's out of luck

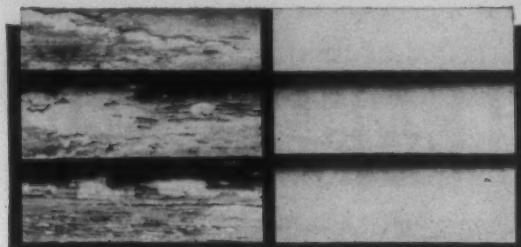
Cracking and scaling is bad news. The trouble is that all the bad paint doesn't scale off. Some of it sticks fast. So the whole surface has to be burned and scraped. That runs into money in a large area job. So does the extra coat—the new priming coat—you have to apply when you repaint.

Cracking and scaling is something that doesn't happen in the long life of paint

made with Dutch Boy White-Lead. This fine paint is elastic to begin with. And it keeps its elasticity. This means three separate savings for the owner: (1) The paint gives much longer service on his property. (2) When repaint time does arrive, no expensive burning and scraping is necessary. (3) Since the Dutch Boy surface is still intact no new priming coat is required in repainting.

#### Here's my proposition

Just say the word and I'll come and inspect all of your buildings. I'll work out a plan



LOW-GRADE PAINT—"Quitting" already—after only a short period of service. Right after this picture was taken, the paint had to be burned off at great expense. It was also necessary to pay for a new priming coat.

DUTCH BOY—Four years old and still in excellent condition. Not a sign of cracking and scaling. And at repaint time, there will be no expensive burning off and no new priming coat to pay for.

for repainting, listing which surfaces should be done this year and which ones can wait. The paint formulas I'll recommend will be especially suited to your requirements, taking into consideration the climate, type of surfaces to be protected, etc. This is possible because Dutch Boy is always mixed-to-order for every job. This service won't cost you one red cent. No obligation. Just write and say when it will be convenient for me to look over your property. I can be reached at the addresses below.



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# TEXTILE BULLETIN

Member of

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Published Semi-Monthly By

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Contributions on subjects pertaining to cotton, its manufacture and distribution, are requested. Contributed articles do not necessarily reflect the opinion of the publishers. Items pertaining to new mills, extensions, etc., are solicited.

## Booth for Mill Inventions

It has been suggested that a booth be set aside in the Southern Power and Engineering Show for gadgets and devices invented by men employed in Southern industrial plants and we believe that it is a splendid idea.

Many men in the mills and in the machine shops invent or develop gadgets and devices which show inventive ability and are well worth while, but because of the lack of funds they have no opportunity to display them to possible purchasers.

We shall set aside one or more booths in the Southern Power and Engineering Show, which will be held in the Armory Auditorium, Charlotte, N. C., October 8th to 12th, inclusive, and will make no charge for the display of any gadget or device which has been developed during the past two years by any man actively connected with a Southern industrial plant.

Those who expect to take advantage of this opportunity to display their inventions, should notify us at an early date so that we may know how much space to reserve.

Contracts for exhibition booths are being received at a very satisfactory rate from manufacturers of power plant and machine shop equipment, and there is now no doubt that all available space will be taken.

Letters which have come to us from men in the industrial plants of the South, especially

from master mechanics and machinists, indicate a very large attendance of such men as well as many of the officials.

## The Wars Go On

It has been well and truly said that the wars now in progress are "cockeyed" wars, but they are not any more cockeyed than many of the opinions being publicly and privately expressed in this country.

It should be realized that each of those engaged in these tragic struggles, is doing everything possible to win and is watching every move made by the enemy.

Our sympathies have been and are a hundred per cent with Finland, and it is easy to criticize England and France for not sending troops to assist in defending that heroic little country, but unless those countries can defeat Germany, their entire future may be wrecked, and if sending troops to Finland and thereby spreading their forces over a much larger area involved great risk, we can not blame them for allowing Finland to fall.

We, in the United States, decided that the war between Russia and Finland was not our war and England and France, who are involved in a titanic struggle of their own, had a right to say that it was not their war.

Were the United States at war and was military information going to the enemy by mail, we would seize and censor every bit of mail upon which we could get our hands, and yet we hear persons express great resentment because England opens and examines, at Bermuda, European mail carried by clippers and extracts communications, of a suspicious nature, intended for Germany. We should not blame others for doing the things which we would do under similar circumstances.

We severely condemn Germany for its ruthless and unjustified invasion of Czechoslovakia and Poland and also condemn Russia for its attack upon little Finland, but, while there are many who hold a different opinion, we are not certain that Japan should be equally censored for its invasion of China.

For more than twenty years China had had no established government and had been ruled very largely by numerous guerrilla groups, each under a separate chieftain. These bandit groups not only fought each other but robbed and murdered the populace.

To make matters worse, both Russian and American communists were working incessantly to establish communism in China and Japan, knew that, if communism did become establish-

ed, one of the first moves would be an attack upon their country.

Prof. John Dewey, of Columbia University, and Rev. Harry Ward, well known radicals, spent a considerable time in China spreading communistic ideas, and one Chinese leader said that they did more harm than fifty years of opium.

There is certainly some ground for believing that Japan's invasion of China was primarily for the purpose of putting an end to the growing menace of communism and to replace guerrilla warfare with an organized government. We do not believe that Japan has any idea of definitely annexing China.

Before getting too excited about Japan's invasion of China we should consider that only a few years ago we sent American troops to a Central American country for the purpose of suppressing guerrilla warfare and restoring organized government and that we shot some of the natives who opposed our efforts.

The present wars may be "cockeyed" but they are not much more cockeyed than some of the current expressions of opinion in the United States.

### Increased Retail Sales

Sears, Roebuck & Co. report February sales of \$40,835,743, an increase of 17% over the \$34,900,544 in the same month of 1939.

Montgomery Ward & Co. report February sales of \$30,530,347, an increase of 22.3% over the \$24,964,107 sales of February, 1939.

An increase in retail sales means that goods are going into consumption and sales by retailers are a far greater factor in business than sales by manufacturers or sales by wholesalers.

### A Sound Labor Leader

We have for many years held the opinion that Mathew Woll, vice-president of the A. F. of L., was the fairest and soundest of the leaders of organized labor.

We have observed his writing and have twice sat upon the same stage with him, and it appears to us that he has the idea that for labor to succeed, industry must succeed.

Our opinion of Mathew Woll was heightened when we recently heard him make a radio address in which he said among other things:

Labor has returned to the production of 1929 with 1,000,000 less laborers employed.

\* \* \*

Labor desires less, not more, government in labor relations.

Industry is not opposed to labor but to the

racketeer system which assumes to direct organized labor.

Seldom has an industry prospered without advancing wages, and we believe that the constant increase in Federal regulations and in taxes are forces which will work against higher wages for employees.

Mathew Woll, if we can judge by his expressions, realizes the situation, and if industry could deal with men of his type, instead of professional racketeers, there would be much more co-operation than now exists.

### The Consumption of Cotton

It is not unusual to hear people speak of the inroads which rayon and other fibres have made into the consumption of cotton, and if persons are not well informed they may be made to believe that there will soon be little demand for cotton.

It is true that in recent years there has been a tremendous increase in the production and consumption of rayon, but from the new edition of the Cotton Year Book, issued by the New York Cotton Exchange, we quote the following statistics relative to the world consumption of cotton:

	Bales
1935-36	27,529,000
1936-37	30,634,000
1937-38	27,746,000
1938-39	28,518,000

The highest world consumption of any year prior to 1935-36 was 25,778,000 in 1928-29. These figures show that the 1938-39 world consumption of cotton was the second largest on record and was 1,000,000 bales more than during the prosperity year of 1928-29.

It is true that during the depression, which has lasted since 1929, the consumption of cotton by American mills declined considerably, but the following statistics relative to American consumption are interesting:

	Bales
1928-29	7,091,000
1936-37	7,950,000
1937-38	5,748,000
1938-39	6,858,000
Average 1936 to 1939	6,851,000

These figures show that in spite of the great increase in American consumption of rayon, the average cotton consumption by American mills during the past three years is only 250,000 bales less than that of 1928-29.

It is very probable that the consumption of cotton by American mills and by the mills of the world will, during 1939-40, break all former records.

# Mill News

ATTALLA, ALA.—Fire destroyed the Kahn Ribbon Mill here March 7th, with a loss estimated at between \$125,000 and \$150,000. The mill employed 140 persons and had a monthly payroll of \$8,000 to \$9,000.

GRIFFIN, GA.—The new dyehouse of the Georgia-Kincaid Mills is nearing completion. J. E. Sirrine & Co. are engineers. Power and lighting work is being done by J. M. Clayton Co., Atlanta, Ga.

JAMESTOWN, N. C.—A new Whitin Spira-whirl opening machine has been installed in the Oakdale Cotton Mills. These mills are engaged in the manufacture of white and colored twine and yarns.

GASTONIA, N. C.—Work has been recently completed at the Parkdale Mills, Inc., on the construction of a new addition which contains 12,500 square feet of additional floor space.

VINSON, VA.—The Burlington Mills Co. announces a contract has been let to B. F. Parrot, of Roanoke, Va., for the construction of a 30,000-foot brick and steel addition to the plant at Vinson, Roanoke suburb.

Half of the new space will be used for warehouse purposes, and half of it for rearrangement of manufacturing equipment and installation of additional looms for production of rayon goods.

LEXINGTON, N. C.—Under a compromise agreement between the city and the Erlanger Mills, the 1941 session of the Legislature will incorporate the mill community as a part of the City of Lexington.

The city agrees to pay the mill company \$170,000 for its utilities, but payment will be in script, which will be retired over a period of 15 years out of part of the city taxes levied against Erlanger property. The mill company will operate its utilities for the first four years, after which they will be taken over entirely by the city.

TAYLORS, S. C.—Harry R. Stephenson, president of the Southern Bleachery & Print Works, Inc., announces that plans and specifications have been prepared by J. E. Sirrine & Co., textile engineers, for a \$50,000 addition to the bleachery division.

Mr. Stephenson said the project would add another floor to the bleachery division, which was constructed in 1924, and would be used as a packing room. The addition will not increase the capacity of the plant, he explained, but is being built to supply more space that has been needed for some time.

LURAY, VA.—Work will begin on the erection of a textile plant here by officials of Schwarzenbach Huber Co., New York, by April 1st if financial arrangements authorized by the company are completed by the Chamber of

Commerce. Production is planned to start by September 1st. The plant will be air-conditioned.

The first unit will be 30,000 square feet and will employ 250 workers in three shifts of eight hours each.

GREENSBORO, N. C.—Papers of incorporation have been filed by Cordell Hosiery Corp., Greensboro, with authorized capital of \$100,000, of which \$300 has been subscribed.

ATHENS, ALA.—The foundation has been completed and the walls are beginning to rise for the new hosiery mill being constructed at Athens College, to provide employment for students working their way through college.

LENOIR, N. C.—The Lutz Hosiery Mills have installed four full-fashioned hosiery machines. They already had 36 54 and 70-gauge seamless machines which were operated upon infants' anklets.

PEARISBURG, VA.—The Warren Construction Co., of Narrows, was low bidder on a 40 by 60 foot brick, steel and concrete building for the Celanese Corp. of America at its plant near here, it was announced by a company official. Details and price were not revealed.

PITTSBORO, N. C.—J. M. Odell Mfg. Co. are planning to construct a complete new hydro-electric plant of 800 horsepower, including new water wheel and governor, generator and switchboard, head and sluice gates. A. H. London is treasurer and manager of this plant.

YORK, S. C.—The Town of York will supply the Cannon Mills with more water and at a reduced rate of charge, according to an agreement reached by the Town Council with mill authorities. In order to furnish the additional water it will be necessary for the town to lay a six-inch water main a distance of 2,600 feet.

ANDALUSIA, ALA.—To take care of increased business, the Alabama Textile Products Corp. has announced plans for the construction of a new building, which will be two stories and measure 60 by 160 feet. The company has also had work under way on a complete renovation of the present mill building, J. G. Scherf, manager, has announced.

MT. AIRY, N. C.—More than \$75,000 in public subscription has been raised for stock in a proposed full-fashioned hosiery mill for this town.

The cost of construction was set at \$200,000, with half to be raised locally and the remainder put up by Hugh Grey, Concord manufacturer. The deadline was March 4th.

The plant would employ 250 persons and have a payroll in excess of \$1,000,000 a year, sponsors said.

# DIEHL TEXTILE MOTORS for SPINNER and TWISTER DRIVE

Provide highest machine efficiency under the most severe service conditions. Open type, lint-free construction. Heavily insulated, thoroughly impregnated and specially treated windings have a glass-like surface to which dirt and flyings do not readily adhere. Design of air passages makes frequent internal cleaning unnecessary. Various mountings available to meet every requirement.

Experienced Diehl Engineers will gladly investigate your motor needs and submit constructive suggestions without obligation.

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Textile Mills  
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**J. E. SIRRINE & COMPANY**  
Greenville Engineers South Carolina

# RAYON IDENTIFICATION with **TINTINOL**

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for all  
Synthetic Fibres and Admixtures

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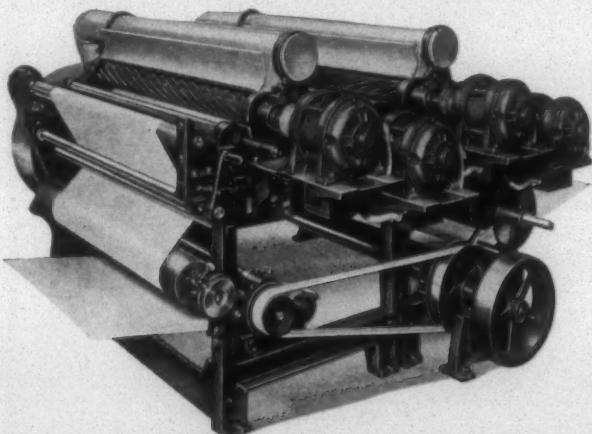
TINTINOL involves the control of three essential factors in Rayon Manufacturing by one simple application. Moisture, Lubrication, Tinting. ★ It imparts tenacity similar to good running cotton, produces a firm web, reduces the crunch, reduces static and split laps. It is the most convenient and economical tinting process known. No extra handling . . . no drying . . . no heating . . . no harsh stock or curled fibres. ★ TINTINOL is shipped in light steel drums which serve as supply reservoir. You can have any color by the turn of a valve. ★ Base Oil (SS) concentrate is also available for conditioning white Rayon stocks where tinting is not necessary.

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Originators of the BRETON MINEROL PROCESS for CONDITIONING COTTON

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W. B. Uhler, Spartanburg, S. C. John Ferguson, La Grange, Ga.  
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OUR AUTOMATIC FOUR-BLADE DIXIE SHEAR  
FOR COTTONS AND RAYONS  
WITH ITS DOUBLE SUCTION  
PULLS THE THREAD UP INTO THE BLADES IN  
FRONT AND CARRIES THEM AWAY IN BACK  
WE SEND IT ON APPROVAL

INVESTIGATE AND THEN YOU WILL INVEST  
IN OUR AUTOMATIC GUIDING  
LOOP CUTTER AND EDGE TRIMMER

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## Cotton Yarn Markets

Philadelphia, Pa.—Buying of cotton yarns has increased some lately, in some divisions of the sale yarn business, and it has been mostly of a necessitous nature. In addition, it appears as if in the last three or four weeks deliveries have maintained a higher weekly average than could be ascertained from the current reports of spinners and distributors.

As an illustration, since January 1st, deliveries have averaged only 10 to 15% below the weekly rate of last fall, in single combed yarns. In ply combed, deliveries since January 1st appear to have decreased only about 10% as compared with last fall, when they were unusually heavy.

The nearer the majority of yarn mills come to the end of their unfilled orders, therefore, the sooner will the rank and file of buyers have to place new orders. And in combed peeler yarns substantial contracting ahead has frequently been done in previous years in March or April. After a long period in which shipments exceeded new orders, the sales of combed yarn recently amounted to less than half the total billings.

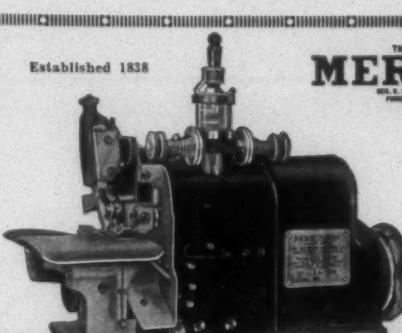
In addition, prices have been rather sharply reduced, so that current purchases are attractive for averaging down the yarn costs on goods to be produced in the next few weeks. There have been six to eight weeks during which customers have shopped more or less before placing even nominal orders. This condition now seems to be approach its end, as buyers have found their preferred sources standing firmly on present quotations.

The two-ply combed yarns as a group have been subjected to price-cutting, which has in some part reduced the unusual spread between the ply and the single combed, but some yarn mills continue to claim that their two-ply quotations are holding. It remains that the spread for ply yarns, above what is asked for singles, is much greater than buyers have been accustomed to paying.

It is to be noted that in April, 1939, a revival started not only in yarns but generally, which carried through the following months in orderly fashion until, in September, the outbreak of war in Europe introduced some mildly inflationary aspects. From present indications, another spring revival now appears likely.

Established 1838

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**MERROW**  
U. S. PAT. OFF. REG. NO. 100,000



For Overseaming and Overeding efficiency at High Speed with maximum and low operating cost Modernize with the new  
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## IT'S THE EDGE —That Prevents Fly Waste and Split Ends

The swirling of the end in passing through the traveler produces smooth even yarn.

This in turn reduces the fly waste to a minimum in the Spinning and Twisting of Cotton, Wool, Worsted, and Asbestos, also reduces the number of split ends in the throwing of Real and Artificial Silks.

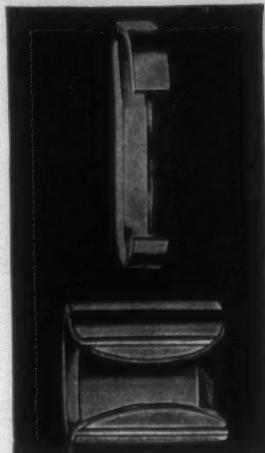
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**The Bowen Patented Vertical Offset**

and

**The Universal Standard Ring Travelers**

# BEVEL



# EDGE

..... Are the result of combined research and experience in manufacturing Ring Travelers and backed by most modern mechanical equipment. It is to your advantage to try these travelers. Made in all sizes and weights to meet every ring traveler requirement.

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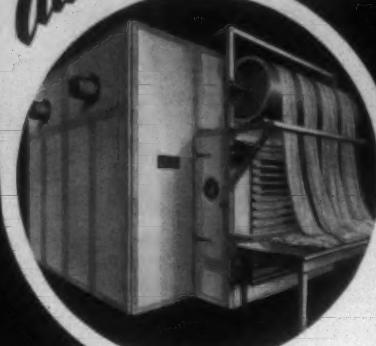
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MACHINE WORKS**  
MANUFACTURERS OF  
TEXTILE MACHINERY  
PARTS

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Corrugated and Smooth-Grip  
by ordering through  
**JOHN P. BATSON — P. O. Box 841**  
**GREENVILLE, SOUTH CAROLINA**

Price 14c

Samples furnished without obligation.

**Committee D-13 of A. S. T. M. Has Successful  
Meeting in Charlotte**

(Continued from Page 16)

all committees of the Society dealing with subjects having a commercial bearing. The personnel of the committee now numbers 210 members. The work of the committee has been assigned to thirteen sub-committees, some of which are divided into sections, making the total unit groups twenty-six.

Today, certain of the standards prepared by the committee are nationally known and widely accepted in all divisions of the industry. Such are the following: the specifications for grab, raveled and cut strip fabric test specimens, for standard atmospheric conditions for testing laboratories, for types of testing machines and details of their operation, for the dead weight gage for thickness measurements, the method of determination of twist in yarns, of identification of fibers in mixtures, for measurement of light fastness, the fundamental textile definitions, and the S and Z nomenclature for designation of direction of twist. This latter item has in fact become an international standard through adoption by the International Standards Association Committee 38 on Textiles. The above-mentioned standards alone have unquestionably had a marked influence upon the manufacturing, sales and testing activities of every important producer and consumer in the entire textile field.

Among those attending the meeting were the following:

**MEMBERS**

Anders, Ida—University of Tenn.  
Appel, W. D.—Bureau of Standards.  
Ashcroft, A. G.—Alexander Smith & Sons Carpet Co.  
Ball, H. J.—Lowell Textile Institute.  
Bonnar, R.—General Dyestuff Corp.  
Bradford, Z. B.—Cannon Mills.  
Brassell, A. L.—U. S. Testing Co.  
Brown, R. H.—Parks-Cramer Co.  
Castricum, Martin—U. S. Rubber Co.  
Clifford, A. C.—Western Electric Co.  
Converse, L. S.—American Viscose Corp.  
Dietz, Robert—Marshall Field & Co.  
Dockerty, S. M.—Owens-Corning Fiberglas Corp.  
Goldberg, J. B.—J. P. Stevens Co.  
Harvey, Dean—Westinghouse Electric Co.  
Hays, Margaret—Bureau of Home Economics.  
Huber, C. J.—U. S. Testing Co.  
Jury, A. E.—U. S. Rubber Co.  
Kinnett, J. T.—Willingham Cotton Mills.  
Kirby, H. R.—Owens-Corning Fiberglas Corp.  
LaPiana, F. G.—Stein, Hall & Co.  
Mapes, F. S.—General Electric Co.  
Marsden, W. R.—Mansfield Tire & Rubber.  
Mathes, W. R.—General Electric Co.  
Nickerson, Dorothy—U. S. Dept. of Agric.  
Noeche, F.—Botany Worsted Co.  
O'Brien, Ruth—Bureau of Home Economics.  
Penny, E. M.—Owens-Corning Fiberglas Corp.  
Pilgrim, F. D.—Tennessee Eastman Corp.  
Pratt, Laura—Sears Roebuck Co.  
Rearden, R. L.—West Point Mfg. Co.  
Schaefer, K. T.—North American Rayon Corp.  
Scott, D. C.—Henry L. Scott Co.  
Scott, Walter M.—U. S. Dept. of Agric.  
Scroggie, A. G.—E. I. duPont.  
Simison, A. L.—Owens-Corning Fiberglas Corp.  
Smith, H. DeWitt—A. M. Tenney Associates.  
Sommaripa, A.—E. I. duPont.  
Staples, M. L.—Ontario Research Foundation.  
Swain, H. L.—Firestone Tire & Rubber Co.  
VanLaer, J. A.—American Enka Corp.  
Vecsey, W. E.—General Tire & Rubber Co.  
Weaver, J. M.—General Asbestos.  
Webb, R. W.—U. S. Dept. of Agric.  
Whitcomb, W. K.—Secretary.  
White, C. J.—Callaway Mills.  
Whittier, B. L.—Mt. Vernon-Woodberry.  
Woolf, D. G.—Textile World.  
Zehr, H. G.—Bemis Bro. Bag Co.

#### GUESTS

Ashmore, A. G.—*Textile World*.  
Bainbridge, T. R.—Tennessee Eastman Corp.  
Baker, P. H.—Texas Co.  
Bell, F. L.—Springs Cotton Mills.  
Bentley, W. L.—Rayon Publishing Co.  
Bethea, P. W.—Springs Cotton Mills.  
Butler, J.—Morgan Cotton Mills.  
Carroll, D.—U. S. Rubber Co.  
Denning, W. F.—Wiscasset Mills.  
Dilling, Marshall—A. M. Smyre Mfg. Co.  
Dilling, Marshall, Jr.—A. M. Smyre Mfg. Co.  
Elizer, L.—Stein, Hall & Co.  
Royal, B. E.—*TEXTILE BULLETIN*.  
Gillie, S. J.—U. S. Testing Co.  
Graybill, L. A.—Firestone Tire & Rubber Co.  
Griffin, I. L.—Stein, Hall & Co.  
Grimes, A. D.—Athens Mfg. Co.  
Harrington, R. C.—U. S. Rubber Co.  
Klinck, J.—Henry L. Scott Co.  
Kuenzel, W.—E. I. duPont.  
Larsen, T.—Carbic Color & Chem Co.  
Lindsay, J.—Clemson College.  
McCormack, C. J.—Rayon Publishing Co.  
McEachern, E. R.—Cannon Mills.  
McKenna, A. E.—Clemson College.  
McGuire, A. G.—Morgan Cotton Mills.  
Neal, R. G.—Bibb Mfg. Co.  
Nuttall, N. H.—Stein, Hall & Co.  
Philip, Robert—*Cotton*.  
Purvis, H. H.—Chicopee Mfg. Co.  
Quillian, D. D.—Athens Mfg. Co.  
Ryberg, B. A.—A. A. T. C. C.  
Scott, J. M.—Henry L. Scott Co.  
Siever, H. L.—Borne, Scrymser Co.  
Sigmon, B. H.—Cannon Mills.  
Such, J. J.—Kendall Mills.  
Thompson, L. M.—Firestone Cotton Mills.  
Thorne, A. M.—Kendall Mills.  
Truax, D. E.—Stein, Hall & Co.  
Clark, David, *TEXTILE BULLETIN*.  
Uhler, W. B.—Borne, Scrymser Co.  
Warwick, C. L.—A. S. T. M.  
White, W. M.—Bemis Bro. Bag Co.  
Willis, H. H.—Clemson Textile School.  
Yow, W. M.—Martha Mills.  
Sixt, N. G.—Carolina Aniline & Extract Co.

#### South Carolina Mill Men Meet May 24-25

Greenville, S. C.—The 1940 convention of the Cotton Manufacturers' Association of South Carolina will be held at High Hampton Inn, Cashiers, N. C., May 24th-25th, Dr. William P. Jacobs, executive vice-president, announced.

The board of directors will hold a pre-convention session Thursday night, May 28th. As usual, there will be no set program for the conclave. Members will spend most of the time discussing problems of the industry.

A number of individual manufacturers probably will be assigned problems to study and to report on. New officers will be elected to succeed M. B. Orr, of Anderson, president; W. S. Montgomery, of Spartanburg, vice-president, and other leaders.

#### E. H. Jacobs Mfg. Co. Builds Third Warehouse

The E. H. Jacobs Mfg. Corp., which removed its plant to Charlotte, N. C., from Johnson City, Tenn., a little over a year ago, is now building its third warehouse at its plant on Dowd Road, it was announced by President W. Irving Bullard.

The new unit will be completed between March 10th and 15th.

The company, which is a subsidiary of E. H. Jacobs Mfg. Co., of Danielson, Conn., produces wood parts for the textile industry and the present expansion is being made in answer to increased business.

## WENTWORTH

### Double Duty Travelers



Last Longer, Make Stronger  
Yarn, Run Clear, preserve  
the SPINNING RING. The  
greatest improvement enter-  
ing the spinning room since  
the advent of the HIGH  
SPEED SPINDLE.

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**NATIONAL**  
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131 W. First Street, Charlotte, N. C.

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all kinds of Textile Machinery—regardless of size or location—is easy and safe with our Modern Equipment and Expert Mechanics.

During the past year we have Serviced Textile Mills from Massachusetts to Mississippi, assisting them in Dismantling, Transferring and Erecting their machinery.

*If We Can Serve You, Write, Wire or  
Telephone For Detailed Information*

#### Southern Spindle & Flyer Co., Inc.

Charlotte, N. C.

*We Manufacture, Overhaul, Move and Rearrange  
Cotton Mill Machinery*

W. H. MONTY, Pres. and Treas.

WANTED—High type sales representative who is thoroughly familiar with weaving and slashing. Knowledge of textile starches and chemicals will be an advantage. Southern territory. Give record of experience and references in first letter. Address "Hustler," care Textile Bulletin.

WANTED—Position as Industrial Relations Director. Textile School graduate with practical mill experience and know cotton mill labor. Have successfully conducted evening school classes in Textile subjects and handled all phases of Welfare Activities and sports program. Now employed but have good reason for making change. Address "Director," care Textile Bulletin.

### Kendall Co. and Subsidiaries Net \$934,043 in 1939

Boston, Mass.—The Kendall Co. and subsidiaries (surgical dressings, cotton textiles, and allied products) report for the fiscal year ended December 31, 1939, net profit of \$934,043, after depreciation, debenture interest, and provision for Federal and foreign income taxes, compared with a profit of \$98,166 in the preceding fiscal year.

The consolidated balance sheet as of December 31, 1939, shows current assets of \$11,794,755, and current liabilities of \$4,007,138, with net working capital of \$9,967,617 and a current ratio of 2.9 to 1.

### Mill Equipment Booklet

Every unit for the power and electrical requirements of the modern woolen and worsted mill is described in a new 20-page illustrated booklet, No. B-2211, issued by the Westinghouse Electric & Manufacturing Co., of East Pittsburgh, Pa.

### Government to Buy 2,500,000 Yards Cotton Ticking

The Federal Surplus Commodities Corp. made known recently that bids would be opened at 11 A. M. February 27th for the purchase of 2,500,000 yards of 32-inch mattress ticking, this material to be used in the manufacture of mattresses for distribution through State relief agencies.

On this particular lot, ticking tendered for delivery must meet specifications as set forth in schedule FSC-34. Tests will be made in accordance with Federal specification CCC-T-191A, and any material delivered under this schedule will be tested by a person or agency designated or approved by the Federal Surplus Commodities Corp. before formal acceptance of the material is made.

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Eaton, Paul B.	31	Stevens, J. P. & Co.	26
Engineering Sales Co.	35	—T—	
—F—		Terrell Machine Co.	19 and 36
Fafnir Bearings Co.	Front Cover	Texas Co., The	—
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Benjamin Franklin Hotel	—	Textile-Finishing Machinery Co.	—
—G—		Textile Shop, The	—
Garland Mfg. Co.	36	Textile Specialty Co.	—
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General Dyestuff Corp.	11	—U—	
General Electric Co.	—	U. S. Bobbin & Shuttle Co.	—
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Greenville Belting Co.	31	U. S. Ring Traveler Co.	27
Grinnell Co.	—	Universal Winding Co.	—
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—J—		Wellington, Sears Co.	26
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Kidder Press Co.	—	—	

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### Cotton Bags To Be Used In Seed Loan Program

Washington, D. C.—Congressman H. P. Fulmer, of South Carolina, has won a victory in his fight to have the government use more cotton bags instead of those of hemp.

This became known when the Department of Agriculture announced that cotton bags will be specified for sacking Austrian winter peas and hairy vetch accepted as collateral by the Commodity Credit Corp. in connection with the 1940 seed loan program in Pacific Northwest States, the Department of Agriculture announced.

### Export of Cotton Since Last July Hits High Figure

New Orleans, La.—Seasonal exports of American cotton crossed the 5,000,000-bale mark March 6th for the first time since April, 1937.

Shipments abroad since the beginning of the current cotton season, August 1st, reached 5,020,363 bales, 2,297,057 more than during the same period last season.

The European war and its attendant demand for increased cotton products together with the United States government's export subsidy program which went into effect last July were principal factors behind the better foreign demands for American growths.

### Woman Suing Mills For Stock Payment

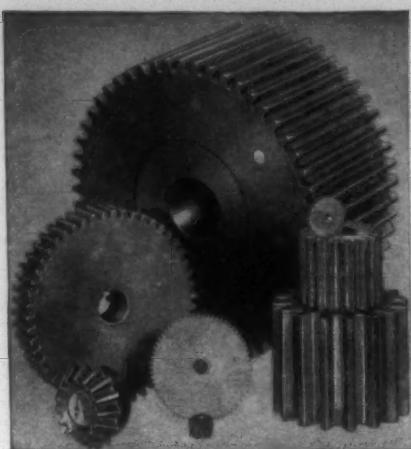
Greensboro, N. C.—The Henrietta Mills of Caroleen are defendants in a Guilford Superior Court action in which Mrs. Nannie W. Clark, of Greensboro, seeks to have the mills reorganized in July, 1937, declared null and void and to force the mill management to pay her \$92.25 on each of 150 shares of preferred stock issued her prior to the reorganization.

She contends that amount is due her in accrued dividends and that the mill has no right to pay dividends on its reorganized stock until her claims on the old stock are satisfied.

### Celanese Corp. 1939 Earnings Set New Record

New York.—The annual pamphlet report of Celanese Corp. of America said the 1939 profit of \$6,374,100 was largest in the company's history.

The result was equal to \$3.53 a share on the common stock after preferred stock dividend deductions. The 1938 profit was \$2,470,749, or 26 cents a share on the common stock.



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### Cotton To Be Furnished for Mattresses

Washington, D. C.—Expansion of the surplus cotton distribution programs to include the furnishing of cotton to low-income families for use in home mattress-making, to be launched experimentally in a number of South Carolina counties and others in the Southern States, was announced by the Department of Agriculture.

The program will augment the present plans under which surplus cotton is made available for State and WPA cotton mattress manufacturing for relief distribution.

About 60 counties in South Carolina, North Carolina, Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Missouri, Oklahoma, Tennessee and Texas will be selected for the initial try-out of the plan. Later it probably will be extended to other States and counties.

Selection of the counties in which the program will operate and the procedure for making application will be announced by the director of the State Extension Service as soon as details are completed in each State.

The program has been developed under the direction of Assistant Secretary Grover B. Hill. The Federal Surplus Commodities Corporation, the Agricultural Adjustment Administration, the Extension Service, and other agencies will co-operate in carrying out the program.

The Federal Surplus Commodities Corp. will make surplus cotton and mattress ticking available to low-income families to use in making mattresses and demonstrating mattress making, and will distribute the materials to the counties where the program will be in effect. Cotton AAA committees will determine eligibility of families desiring to take part in the program, request the amounts of cotton and ticking needed in the individual county, and receive the material when it is shipped to the county. The extension services, co-operating with the other agencies, will supervise instructional work in getting the mattresses made. The new plan will supplement other demonstration programs under way in a number of Southern States which have as their broad general objectives the use of more cotton and the making and purchase of more mattresses.

### Producers Report Orders Well in Excess of Stocks

New York.—It has been disclosed that print cloth manufacturers late last week decided to continue the system of open price reporting that has been in effect for the last several years. At a meeting held at Spartanburg, S. C., which was unusually well attended, it was unanimously decided that price reporting is of value to the mills, their agents and their customers in that it tends to stabilize the market by replacing rumor with fact and clearly shows just what the market is. Manufacturers urged that officials of the group make a special effort to induce other mills and agents to participate. More than 60% of the non-converter looms on print cloths and carded broadcloths are already reporting. In addition to the action taken on price reporting and the setting up of vigorous committees of mill owners to urge participation on the part of mills in general, producers present at the meeting also studied the statistical position of the industry. They found the print cloth division to be unusually sound with

unfilled orders still in excess of stocks and with inventories lower by two to one than they have been at any time during the past two years with the exception of November and December of 1939.

### Culloden District Wins Ga. Cotton Manufacturers Award for Cotton Improvement

The Culloden One-Variety Cotton Community has been chosen as the winner of the trophy awarded by the Cotton Manufacturers' Association of Georgia for having produced the best results in the Georgia Cotton Improvement Program during the past year.

Presentation of the trophy to the cotton farmers in the winning district will be made by R. O. Arnold, president of the Cotton Manufacturers' Association of Georgia, at exercises to be held at Culloden, Ga., on Wednesday, March 27, 1940. Following presentation of the trophy, a large bronze cup, appropriately engraved, there will be a barbecue to which representatives of the various branches of the cotton industry throughout Georgia are being invited.

Under the One-Variety Cotton Community plan, the farmers within selected areas agree to plant only a certain variety of cotton, which, by tests and experimentation, has been determined to be best suited to local soil and climatic conditions, and to be of such a grade, staple and character as to meet the spinning requirements of the local textile mills. The cotton grown in these communities is carefully supervised during cultivation and ginning to prevent its becoming mixed with other varieties and complete records are kept with respect to fertilizer used, production costs, and yield per acre, and the cotton is scientifically classed and graded before it is marketed.

Several hundred Georgia communities have participated in this program for the past several years, and as a result the quality of Georgia cotton as a whole has been materially improved to the great advantage of the participating farmers who receive a much higher price for the better grades and staple lengths.

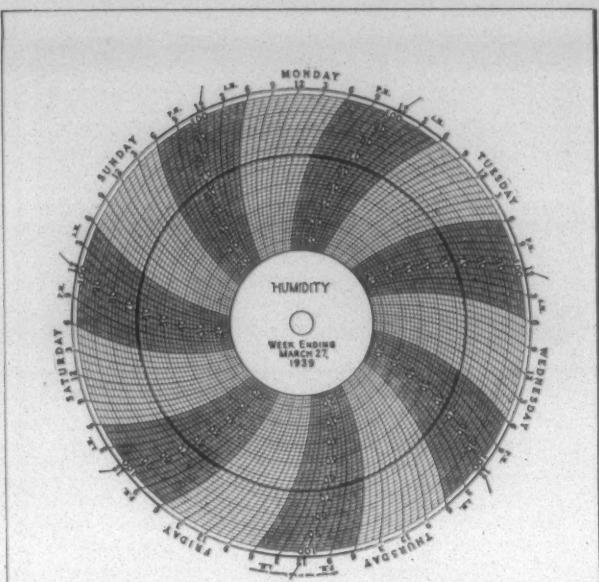
### Tide Water Associated Announces Plans for New Tanker

The placing of a contract for a new tanker of 18,500 bbl. capacity for Tide Water Associated Oil Co. was announced recently by R. H. Mariner, Southern sales manager of Tide Water. The new tanker is to be built by the Charleston Shipbuilding & Drydock Co., of Charleston, S. C.

The twin screw steel all-welded bulk oil vessel will be used for coastwise and inland water service.

Mr. Mariner has pointed out that, according to Tide Water's specifications, as much of the material for the ship as possible is to be bought in the South from Southern manufacturers or mills.

This shipbuilding job, which is to be supervised by L. Louis Green, Jr., vice-president and general manager of the Charles Shipbuilding & Drydock Co., is expected to give employment to many skilled workmen for approximately ten months.



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We manufacture all types of textile leathers for cotton, woolen, worsted, silk and rayon looms.

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### Engineering Aspects of Textile Technology

(Continued from Page 8)

Usual conditions range from .01 cubic feet per minute to 40 cubic feet per minute, and particularly at low rates of flow, the "hairiness" of the yarns composing the cloth becomes of great importance.

### Insulating Material

For as many years as extensive use of electrical devices has been general textile materials have served as insulators. During this same period extensive research has been conducted to investigate the properties of these materials and to improve their performance. In this connection the work undertaken by the Bell Telephone Laboratories has been particularly productive of important and interesting information. Much of it may be considered as the by-product of pure research and in this classification is the work on moisture absorption of textile fibers. A dry fiber is an excellent insulator, but one containing moisture picked up from the atmosphere rapidly loses its effectiveness in preventing flow of electric energy as the moisture regain increases. The mechanism of moisture absorption is complex and not yet fully understood, but as a result of an engineering application of fiber, yarn and fabric as electrical insulators the remaining mystery may be fully cleared up.

### Automobile Industry Important

The automotive industry has made use of fabrics and yarns for years and continues this use in the latest model cars. The textile technologist has had his attention called to the importance of a phase of testing which hitherto has been rather badly neglected and this warning has come from the automotive industry at least indirectly. Resilience or the recovery from compression is vital to the proper functioning of the spring suspension of the automobile. Resilience in much the same sense is equally vital for the textile used to stuff mattresses and pillows as well as that used for floor and furniture coverings. While it may be argued that you can't push on a rope and hence need not worry about compression testing of textiles, the tire manufacturer joins the carpet manufacturer in disagreeing. As a result effort has been devoted to design, construction and use of textile compressometers, resilience testers and thickness measuring devices all employing pressure. If the results of certain compression tests are plotted very interesting and informative hysteresis loops are obtained. Energy changes and losses involved during such tests can be studied and such investigations are increasingly fruitful.

### Behavior Under Small Repeated Stresses

The textile technologist along with the engineer is also realizing that perhaps too much emphasis has been placed upon the breaking load of materials as contrasted with the behavior of the material under small repeated stresses. Again the tire manufacturer has pioneered in this field and finds himself much more concerned with the life of tire cord subjected to repeated stresses much lower in magnitude than the ultimate stress than he is with the ultimate breaking load. Repeated flexing produces an

ternal abrasive action which may eventually cause failure. And just as the tester is wholly uninterested in conducting an abrasion test which shall cause total destruction of the sample in a single stroke; so the worker with tensile and compressive forces is becoming totally uninterested in single pulls to rupture.

Such investigations cannot be conducted over any length of time without bringing up the question of behavior of fibers under small strains which are alternately applied and removed. Work sponsored at the Massachusetts Institute of Technology by the Textile Foundation is attempting to correlate optical and physical evidence of creep and creep recovery together with plastic deformation with the nature and degree of molecular orientation within the fiber. Thus familiar engineering technique is making possible advances into the unknown realm of ultimate fiber structure. Another debt owed the engineer by the textile researcher.

All these devices and techniques are combining to demonstrate that there seems to be a definite self-contained parallel in textile structures. Yarns are twisted from fibers. Fibers are twisted from fibrils—the last fiber-like structure visible in the microscope. Fibrils are made up of molecular fibers each one of which is a long-chain molecule, designated by one popular writer as "molecular chain gangs." Even as nature spins molecules to fibrils and fibrils to fibers, man not only spins fibers to yarns and yarns to cords, but is himself spinning molecules into rayon, vinyon, lanital, and nylon.

And in this spinning the problem is not what materials to provide. The bricks of the structure are carbon, hydrogen, oxygen and nitrogen. It is rather how they shall be combined. The difficulty is that which confronts the engineer in the specialized field of architecture. For the production of a satisfactory synthetic fiber is essentially a matter of architecture. It is a matter of arrangement of atoms and molecules, not so much their selection. Indigo dye is made of carbon, hydrogen, oxygen, and nitrogen and so are wool and silk. But there can be no confusion as to the identification of the dye as distinct from the fibers which it colors. The arrangement of these atoms in indigo produces a very satisfactory dyestuff. A different arrangement of these same atoms produces silk, still another produces wool, and a third results in nylon. Similarly horn and feathers represent further alterations in methods of combination of these elements. The scientist may not know why the sheep is clothed in wool rather than in silk or feathers but through intelligent application of fundamental engineering principles he is well on his way to find out and explain the important peculiarities of the structure of each.

#### Textile Technologist Must Be Versatile

Like the engineer the textile technologist must have a smattering at least of many sciences. He must be something of a mathematician, physicist, chemist, botanist, biologist and statistician all rolled into one. No longer can a sharp dividing line be drawn between chemistry and physics. And in the field of textiles, at least, there is developing a closer and closer association with and among the sciences which deal with life processes. The botanist and the biologist have much to contribute to the knowledge of the formation of the vegetable and animal fibers

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which are brought into being as the result of life processes by living organisms. Even as the engineer is increasingly seeking the help of the chemist and physicist as in the field of metallurgy to mention only one instance, so the textile technologist must join hands with the biologist and the botanist. If he is wise he will not only gladly receive their contributions to fundamental knowledge of fiber structure and growth but he will enthusiastically welcome the use of the statistical method which they have so long and so fruitfully employed. The method is invaluable in the laboratory to govern efficient planning of experiments. It is invaluable for the proper interpretation of data both as to correlation of trends and for the analysis of variance. Further it should be extended to embrace quality control in manufacturing and to aid in production control studies.

Whether it be in the measurement of physical properties of materials by the techniques of engineering, or the interpretation and application of the results of research for the benefit of the manufacturer, the textile technologist has merged himself as has the engineer in what the late Arthur D. Little called "the fifth estate" . . . . . "composed of those having the simplicity to wonder, the ability to question, the power to generalize, the capacity to apply. It is, in short, the company of thinkers, workers, expounders and practitioners upon which the world is absolutely dependent for the preservation and advancement of that general organized knowledge which we call science."

*Excerpts of address presented at the Annual Meeting of the American Society of Mechanical Engineers, Philadelphia.*

### The Use of Synthetic Organic Materials in Textile Finishing

(Continued from Page 10)

groups, composed of repellancy and fastness tests. The repellancy tests comprise a spray test, immersion test, and a spot test. These tests are made on the fabric as finished, after a standard wash test, and after a dry cleaning test. Here again, the licensor has set up standards which the fabric must meet to be offered to the trade as a permanent waterproofing.

The methods of testing these various finishes have not been worked out completely. Usually each laboratory has a rough method of evaluating their own work, such as determining the amount of resin in a piece of cloth, but, in general, they are unable to apply these methods to competitor's goods. This is due to the great variety of materials in use, and unless the laboratory is able to ascertain which type of resin has been used, it is not always possible to make quantitative determinations on the sample. As you know, there is a project in progress at present to develop tests of the "hand" of goods, but this is also incomplete. However, we can look forward to developments in methods of testing these new finishes, so that we will have a firmer ground to stand on than simply saying that the goods have a "nice hand."

## Japan Rayon Yarn Output Increase is 14% During 1939

Yokohama, Japan.—The rayon yarn output for Japan for 1939 totaled 239,241,200 pounds, an increase of about 30 million pounds, or 14%, compared with 209,670,000 pounds of the previous year, according to a survey made by the Japan Rayon Yarn Producers' Association.

Of the total, special kinds of rayon and rayon yarn produced by outsiders of the association amount to 900,300 and 9,600,000 pounds, respectively. Accordingly, the genuine rayon yarn output by the members of the association amounted to 228,740,800 pounds, showing an expansion of 28,764,500 pounds, or 14% compared with 1938. The reason for the expansion of the rayon yarn output in 1939 is the enforcement of the link system for the production of export rayon yarn, so as to encourage the production of rayon yarn.

## U. S. Rayon Exports in 1939 Showed Steady Growth

Although not large in comparison with domestic consumption, exports of rayon from the United States showed a steady growth in 1939, and the dollar value and poundage of the export of this product were the largest of any year in the history of the export trade, states the *Rayon Organon*, published by the Textile Economics Bureau, Inc.

The dollar value of the estimated 12,000,000 pounds of rayon items exported from the United States was \$15,300,000, according to the publication. This new high record total compares with a previous peak of \$11,000,000 in 1938 and a low of \$2,400,000 in 1933.

The West Indies area has for many years been the largest foreign market for American-made rayon products. Cuba, for instance, which took 25% of all rayon exports, was America's largest single customer. The Union of South Africa ranked second, the Philippines third, Canada fourth, and the United Kingdom fifth.

Shipments to the United Kingdom in 1939 were at about the same level as in 1938, but the shipments to the other four markets rose substantially last year. The five countries mentioned accounted for 78% of our total rayon exports in 1939.

Four British Empire countries (United Kingdom, Canada, Australia, and the Union of South Africa) accounted for 40% of the 1939 value of rayon exports from the United States.

Shipments of rayon filament yarn to domestic consumers amounted to 29,700,000 pounds in the short month of February compared with 31,400,000 pounds in January. Deliveries for the two months of 1940 totaled 61,100,000 pounds, an increase of 16% compared with 52,800,000 pounds delivered during the corresponding months of 1939.

Stocks of rayon yarn held by American producers totaled 8,300,000 pounds at the end of February, which compares with 7,000,000 pounds on hand as of January 31, 1940.

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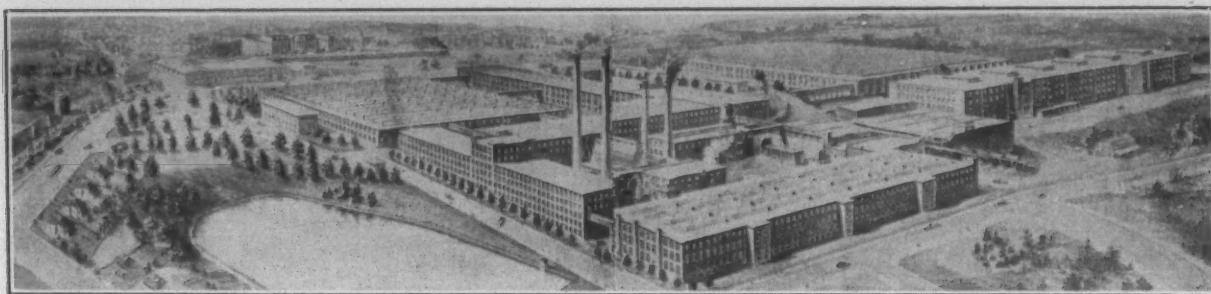
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## Visiting the Mills

Intimate Glimpses of Activities in Southern Textile Plants and the Men Who Own and Operate Them.

By Mrs. Ethel Thomas Dabbs (Aunt Becky)

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Joanna Cotton Mills

No place in the South can boast of a more attractive and progressive mill community than this. There is not an unsightly spot on the village. Back lots receive as much attention as front yards; even the garbage cans are ornamental! There is shrubbery everywhere, and in season, a gorgeous array of flowers of fine varieties. Crepe myrtle is a favorite flowering shrub, and from June to October the village is lovely with its red, pink and orchid plumes.

There is more and better organized community activities here than this writer has found in a long time. Mrs. Blanche R. Durgin is director of social activities.

Miss Crawford is ably filling the positions of club hostess, librarian, general information bureau, and typist. She also has charge of the ice cream and coca-cola accounts.

The Woman's Club has been highly complimented by the State Board for the work accomplished, was invited to join the State Federation, and accepted.

The Literature Committee has compiled a cook book of tested recipes. A really commendable piece of work is this, in which over 50 women took part.

The Drama Committee has produced several farces and minstrels to raise funds for club use. The Christmas play was the best of all, with members of the Masonic and Moose Lodges, Scouts and other organizations, the church, overseers, and Mr. Ellis assisting the Woman's Club.

The Community Chorus has 30 members, brought a singing convention to Joanna last year. This chorus sings at all churches services and prepares special music for special occasions. Bruce Galloway, director, Mrs. E. G. Kay, pianist, and Miss Annette Moorhead, violinist, are recipients of high praise. This chorus gives one concert a year to raise funds for the purchase of music.

Garden Committee. In 1938 the first 80 flower borders planted in the village. Last year there were around 300! Over 4,000 bulbs of iris tulips and daffodils, also 500 rose bushes, were planted by the ladies who have learned to prepare, fertilize and cultivate the soil. Right along here is where Mr. Ellis shines, too. He is in charge of greenhouses, hot beds, cold frames and general community improvement.

The Social Service Committee, divided into zones, keep close watch over community health, help the sick and give flowers and fruit. In death, all meals are prepared and sent into the bereaved homes until after the funeral.

We could go on and on to tell about the Needlework Committee, House Committee, the Girls' Club, Scouts and general community activities that make Joanna one of the most interesting places in the South, where no discordant note or disturbing element can find a place to lodge.

*Joanna News*, a delightful community weekly of 425 copies and several pages, is mimeographed at a weekly cost of \$3.85. In this way community news is delightfully given and the operatives kept in close touch with each other.

### McCOLL, S. C.

Plymouth Mfg. Co.

It has been a long time since I've had a more pleasant visit than that to McColl, where "Aunt Becky" and the *TEXTILE BULLETIN* have a host of friends, as proven by our large number of subscribers.

Was delighted to find Mr. Geo. W. Johnson, formerly of Prattville, Ala., as superintendent. The people declare that he is a "God-sent man" and he has their full confidence. All are pulling together for mutual good and the little town of McColl is taking a new lease on life. We've never seen happier or more hopeful people, and with such a fine spirit of co-operation, success for all concerned is assured.

M. H. King is genial overseer of carding and spinning, with M. L. Orvin, M. L. Jackson, Ira Baxter, Dalton Fowler, Lonnie Rasberry and L. K. Coble, second hands and section men; A. L. Burroughs, card grinder, and Lonnie Burroughs, timekeeper.

This is the mill near the office and was in nice order.

At the other yarn mill, O. S. Jones is overseer carding and spinning; Edgar Cutchins, Henry F. Bolton, Will Miller, Simon Carlisle, Mathew D. Jones and T. B. Lewellen, section men and card grinders. It is very evident that these young men take pride in their work.

At the big weave mill, which uses the output from the above yarn mills, we found our old friend Mr. Dampier still on the job as overseer.

Mrs. A. A. Odell, Walter Parrish, Walter Cutchin, Chester Cook and Wade Crow were among the first to sign on the dotted line and there were many kind expressions of appreciation for our Mr. Clark and the good work he is doing through his TEXTILE BULLETIN.

Now meet a bunch of wide-awake loom fixers: John O. Stroud, C. E. Meshaw, J. H. Kelly, R. A. Buckles, A. H. Nordam, G. B. Gardner, R. H. Holt and W. O. Moore. These boys know their business, too.

Here are some hustling slasher men: L. E. Prosser, Walter R. Cox and Luther Quick.

Geo. C. Edwards is overseer of the cloth room and R. C. Long is master mechanic.

Mr. P. A. Gwaltney, vice-president, doesn't like publicity; but this little tribute to Plymouth Mfg. Co. and the warm-hearted and friendly operatives just had to be written, and we feel sure he'll forgive us.

### BLADENBORO, N. C.

#### Bladenboro Cotton Mills

Bladenboro is putting in a water system at last. Such a pity it was not ready to function when the lovely home of Mr. J. L. Bridges caught fire during the bitter cold and snow a few weeks ago and burned down.

The mills here are going nicely with C. H. Dunn, superintendent of No. 1 and No. 2, and Wm. M. Aspinwall, superintendent of No. 3.

C. B. Hasbrooks, formerly overseer of dyeing, now has an office position.

The overseers and other key men in the three mills are: W. E. Brown, overseer carding; E. H. Bass, formerly of Laurel Hill, overseer spinning; J. C. Hester, R. M. Hester, overseers carding; Gerald Mercer, master mechanic; H. C. Bennett, overseer; R. G. Carter, Fred Williams, A. G. Hester, Jesse Lewis, Luther Creech, T. F. Dove, Bill Cain and D. Roy Davis, second hands.

We look forward to seeing this town when Bladenboro finishes contemplated improvements.

### REIDSVILLE, N. C.

#### Edna Mills Corp.

Here we find J. B. Pipkin, president, W. B. Pipkin, treasurer, and E. E. Pipkin, secretary—a father and his

(Continued on Page 42)



Old Dominion maintains an art department and a creative staff for developing both individual and coordinated package designs. This service is yours without obligation.

Where a manufacturer has a line of products, coordinated packaging plays a vital part in his sales.

The identification that exists in "family units" increases brand recognition.

Through coordinated packaging the effect of advertising is carried over from advertised to non-advertised items.

### Old Dominion Box Co., Inc.

LYNCHBURG, VIRGINIA

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SHUTTLES - HEDDLE FRAMES  
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STRIPPER CARDS

### WATSON-WILLIAMS

MANUFACTURING CO.

MILLBURY, MASSACHUSETTS

E. V. Wilson, 308 Mills Ave., Greenville, S. C.

### TEAMWORK

World's Series bring names of a few star pitchers and batters flashing into headlines, but what really clinches the pennant is the teamwork of players seldom heard of.

It's the same in spinning. The traveler is only a "half-pint" in the spinning process as far as size is concerned, but it has a major effect on the quality and production cost of the finished yarn.

If you choose Victor Travelers, you'll learn the real meaning of teamwork. Win the Spinning Room Series this year—with Victor Travelers. We'll send a trial supply . . . FREE.

### VICTOR RING TRAVELER COMPANY

20 Mathewson St. Providence, R. I.

P. O. Box 1318 173 W. Franklin Ave.

1733 Inverness Ave., N. E. Atlanta, Ga. Gastonia, N. C.

Tel.—Vernon 2330 Tel.—247

# Southern Sources of Supply

## For Equipment, Parts, Material, Service

Following are the addresses of Southern plants, warehouses, offices, and representatives of manufacturers of textile equipment and supplies who advertise regularly in *TEXTILE BULLETIN*. We realize that operating executives are frequently in urgent need of information, service, equipment, parts and materials, and believe this guide will prove of real value to our subscribers.

**AMERICAN CYANAMID & CHEMICAL CORP.**, 30 Rockefeller Plaza, New York City. Sou. Office and Warehouse, 822 W. Morehead St., Charlotte, N. C.; Hugh Puckett, Southern Sales Mgr., Reps., John D. Hunter, C. B. Suttle, Jr., A. W. Foley, Charlotte Office; E. J. Adams, 1404 S. 22nd St., Birmingham, Ala.; Jack B. Button, 1202 W. Market St., Greensboro, N. C.; Eugene H. Driver, 272 14th St., N. E., Atlanta, Ga.; Milton H. Earle, Jr., 409 Westfield Ave., Greenville, S. C.

**AMERICAN MOISTENING CO.**, Providence, R. I. Sou. Plants, Charlotte, N. C., and Atlanta, Ga.

**ARMSTRONG CORK CO.** (Textile Division), Lancaster, Pa. Sou. Office, 33 Norwood Place, Greenville, S. C. J. V. Ashley.

**ARNOLD, HOFFMAN & CO., Inc.**, Providence, R. I. Chester L. Eddy, Asst. Sales Mgr., 903-904 Woodside Bldg., Greenville, S. C. Sou. Reps., W. Chester Cobb, Box 1268, Charlotte, N. C.; Robert E. Buck, Box 904, Greenville, S. C.; Harold T. Buck, 1615 12th St., Columbus, Ga.; D. Floyd Burns, Jr., Box 198, Durham, N. C.

**ASHWORTH BROS., Inc.**, Charlotte, N. C. Sou. Offices, 44-A Norwood Place, Greenville, S. C.; 215 Central Ave., S. W., Atlanta, Ga.; Texas Rep., Textile Supply Co., Dallas, Tex.

**ATLANTA HARNESS & REED MFG. CO.**, Atlanta, Ga. Succeeded by Steel Heddle Mfg. Co., Atlanta Division. (See this company's listing.)

**AUFFMORDT & CO., C. A.**, 2 Park Ave., New York City. Sou. Rep., S. L. Diggle, Jr., 522 Hawthorne Lane, Charlotte, N. C.

**BANCROFT BELTING CO.**, Boston, Mass. Sou. Distributor, Carolina Supply Co., Greenville, S. C.

**BARBER-COLMAN CO.**, Rockford, Ill. Sou. Office, 31 W. McBee Ave., Greenville, S. C. J. H. Spencer, Mgr.

**BARKLEY MACHINE WKS.**, Gastonia, N. C.

**BECCO SALES CORP.**, Buffalo, N. Y. Sou. Reps., J. D. Quern and D. S. Quern, 1930 Harris Road, Charlotte, N. C.

**BORNE, SCRYSER CO.**, 17 Battery Place, New York City. Sou. Mgr., H. L. Siever, P. O. Box 1169, Charlotte, N. C. Sales Reps., W. B. Uhler, 608 Palmetto St., Spartanburg, S. C.; R. C. Young, 1546 Stanford Place, Charlotte, N. C.; John Ferguson, P. O. Box 592, LaGrange, Ga.

**CAROLINA REFRactories CO.**, Hartsville, S. C.

**CARTER TRAVELER CO.**, Gastonia, N. C.

**CHARLOTTE CHEMICAL LABORATORIES, Inc.**, Charlotte, N. C.

**CHARLOTTE LEATHER BELTING CO.**, Charlotte, N. C.

**CIBA CO., Inc.**, Greenwich and Morton Sts., New York City. Sou. Offices and Warehouses, Charlotte, N. C.

**CLINTON CO.**, Clinton, Iowa. Luther Knowles, Sou. Agt., Box 127, Phone 2-2486, Charlotte, N. C. Sou. Reps., Grady Gilbert, Box 342, Phone 1132, Concord, N. C.; Clinton Sales Co., Inc., Dana H. Alexander, 900 Woodside Bldg., Phone 3713, Greenville, S. C.; Geo. B. Moore, Box 481, Phone 822, Spartanburg, S. C.; Boyce L. Estes, Box 325, Phone 469, LaGrange, Ga. Stocks carried at Carolina Transfer & Storage Co., Charlotte, N. C.; Consolidated Brokerage Co., Greenville, S. C.; Bonded Service Warehouse, Atlanta, Ga.; Farmers Bonded Warehouse, Roanoke Rapids, N. C.

**CORN PRODUCTS REFINING CO.**, 17 Battery Place, New York City. Corn Products Sales Co., Greenville, S. C.; John R. White, Mgr.; Corn Products Sales Co., Montgomery Bldg., Spartanburg, S. C.; J. Canty Alexander, Asst. Sou. Mgr.; Corn Products Sales Co. (Mill and Paper Starch Div.), Hurt Bldg., Atlanta, Ga., C. G. Stover, Mgr.; Corn Products Sales Co., 824-25 South-eastern Bldg., Greensboro, N. C.; W. R. Joyner, Mgr.; Corn Products Sales Co., Comer Bldg., Birmingham, Ala., L. H. Kelly, Mgr. Stocks carried at convenient points.

**CUTLER, ROGER W.**, 141 Milk St., Boston, Mass. Sou. Office, Woodside Bldg., Greenville, S. C. Sou. Tape Agent: Byrd Miller, Woodside Bldg., Greenville, S. C. Roll Agents: Dixie Roller Shop, Rockingham, N. C.; A. J. Whittemore & Sons, Burlington, N. C.; Dixie Roll & Cot Co., Macon, Ga.; Morrow Roller Shop, Albemarle, N. C.; Greenville Roll & Leather Co., Greenville, S. C. Take Up Roll Agent: M. Bradford Hodges, Box 752, Atlanta, Ga.

**DARY RING TRAVELER CO.**, Taunton, Mass. Sou. Rep., John E. Humphries, P. O. Box 843, Greenville, S. C.; Chas. L.

Ashley, P. O. Box 720, Atlanta, Ga.; John H. O'Neill, P. O. Box 720, Atlanta, Ga. H. Reid Lockman, P. O. Box 515, Spartanburg, S. C.

**DETERGENT PRODUCTS CO.**, 494 Spring St., N.W., Atlanta, Ga. Offices at Columbia, S. C., Raleigh, N. C., Texarkana, Ark., Columbus, Ga.

**DIEHL MFG. CO.**, Elizabethport, N. J. Textile Dept., P. N. Thorpe & Co., 267 Fifth Ave., New York City. Sou. Offices: Charlotte, N. C., 617 Johnston Bldg., James H. Lewis; Atlanta, Ga., 172 Trinity Ave., S. W., S. G. Boyd; Dallas, Tex., 2nd Unit Santa Fe Bldg., Olin Duff.

**DILLARD PAPER CO.**, Greensboro, N. C., Greenville, S. C., Charlotte, N. C.

**DRAKE CORP.**, Norfolk, Va.

**DRAPER CORPORATION**, Hopedale, Mass. Sou. Rep., E. N. Darrin, Vice-Pres. Sou. Offices and Warehouses, 242 Forsyth St., S. W., Atlanta, Ga., W. M. Mitchell; Spartanburg, S. C., Clare H. Draper, Jr.

**DU PONT DE NEMOURS & CO., Inc.**, E. I., Organic Chemicals Dept., Dyestuffs and Fine Chemicals Div., Wilmington, Del. John L. Dabbs, Sou. Sales Mgr.; D. C. Newman, Asst. Sou. Sales Mgr.; J. D. Sandridge, Asst. Sou. Sales Mgr.; E. P. Davidson, Asst. Mgr. Technical. Sou. Warehouses, 414 S. Church St., Charlotte, N. C. Reps., C. H. Asbury, H. B. Constable, J. P. Franklin, J. F. Gardner, L. E. Green, M. D. Haney, W. R. Ivey, S. A. Pettus, Jr., W. A. Pickens, N. R. Vieira, Charlotte Office; J. T. McGregor, Jr., James A. Kidd, 1035 Jefferson Standard Bldg., Greensboro, N. C.; John L. Dabbs, Jr., G. H. Boyd, 804 Provident Bldg., Chattanooga, Tenn.; R. D. Sloan, T. R. Johnson, Greenville, S. C.; W. F. Crayton, Adam Fisher, Jr., W. A. Howard, Columbus, Ga.; J. A. Franklin, Augusta, Ga.; Tom Taylor, Newnan, Ga.

**DU PONT DE NEMOURS & CO., Inc.**, E. I., The R. & H. Chemicals Dept., Main Office, Wilmington, Del.; Charlotte Office, 414 S. Church St., LeRoy Kennette, Dist. Sales Mgr., Reps., J. L. Moore, Technical Man, Penn R. Lindsay, Salesman, 414 S. Church St.; N. P. Arnold, 1234 E. Lake Road, Atlanta, Ga., Technical Service Man; R. C. Cochrane, 356 Pine Tree Drive, Atlanta, Ga., Salesman; W. F. Murphy, 1106 19th Ave., Nashville, Tenn., Ceramic Salesman.

**EATON, PAUL B.**, 213 Johnston Bldg., Charlotte, N. C.

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**ENGINEERING SALES CO.**, 217 Builders' Bldg., Charlotte, N. C., S. R. and V. G. Brookshire.

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**FRANKLIN PROCESS CO.**, Providence, R. I. Sou. Plants, Southern Franklin Process Co., Greenville, S. C.; Central Franklin Process Co., Chattanooga, Tenn.

**GENERAL COAL CO.**, 1215 Johnston Bldg., Charlotte, N. C., C. L. Rowe, Sou. Sales Mgr., Reps., J. W. Lassiter, F. W. Reagan, E. H. Chapman, Charlotte, N. C.; J. C. Borden, Grace American Bldg., Richmond, Va.; D. H. R. Wigg, Wainwright Bldg., Norfolk, Va.; W. A. Counts, Law & Commerce Bldg., Bluefield, W. Va.; H. C. Moshell, People's Bank Bldg., Charleston, S. C.; P. W. Black, Greenville, S. C.; H. G. Thompson, Bristol, Tenn.

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Corner Jacksboro Pike and Oak Park Drive, Fountain City, Tenn.; Angus P. Gunn, 4011 Mt. Vernon St., Richmond, Va.; R. S. Hayes, 2305 Fourth Ave., Richmond, Va.; C. Wallace Jackson, 1709 Fort Bragg Road, Fayetteville, N. C.; T. B. Longhurst, 301 S. Union St., Concord, N. C.

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**NORLANDER MACHINE CO.**, New Bedford, Mass. Sou. Plant, 213 W. Long St., Gastonia, N. C.

**NORMA-HOFFMANN BEARINGS CORP.**, Stamford, Conn. Sou. Rep., E. W. Lawrence, 1841 Plaza, Charlotte, N. C.

**OLD DOMINION BOX CO.**, Lynchburg, Va. Factories at Lynchburg, Va., and Charlotte, N. C.

**ONYX OIL & CHEMICAL CO.**, Jersey City, N. J. Sou. Reps., Edwin W. Klump, 2018 Dilworth Road, West, Charlotte, N. C.; Cliff C. Myers, 2131 Charlotte Drive, Charlotte, N. C.

**PABST SALES CO.**, 221 N. LaSalle St., Chicago, Ill. Sou. Rep., W. A. Pardue, Anderson, S. C. Sou. Warehouse, Textile Warehouse Co., Greenville, S. C.

**PARKS-CRAMER CO.**, Plants at Fitchburg, Mass., and Charlotte, N. C. Atlanta Office, Bona Allen Bldg.

**PENICK & FORD, LTD., Inc.**, 420 Lexington Ave., New York City; Cedar Rapids, Iowa; P. G. Wear, Sou. Sales Mgr., Atlanta, Ga.; W. J. Kirby, E. C. Kontz, J. H. Almand, Atlanta Office; C. T. Lassiter, Greensboro, N. C.; G. L. Morrison, Spartanburg, S. C.; T. H. Nelson, Charlotte, N. C.; W. R. Brown, Dallas, Tex. Stocks carried at convenient points.

**PROCTOR & SCHWARTZ, Inc.**, Philadelphia, Pa. Sou. Rep., H. G. Mayer, 414 Johnston Bldg., Charlotte, N. C.

**PROVIDENT LIFE & ACCIDENT INS. CO.** (Group Accident and Health and Welfare Plans Div.), Chattanooga, Tenn. Southeastern Div. Office, 203 Commercial Bank Bldg., Gastonia, N. C.

**PURE OIL CO., THE**, Industrial Sales Dept., Southeastern Division Office, 140 Spring St., S. W., Atlanta, Ga., G. T. Clark, Mgr.

**RHOADS, J. E. & SONS**, 35 N. Sixth St., Philadelphia, Pa. Sou. Reps., L. H. Schwoebel, 513 N. Spring St., Winston-Salem, N. C.; J. W. Mitchell, Box 1589, Greenville, S. C.; A. S. Jay, 1600 S. 21st St., Birmingham, Ala.; J. T. Hoffman, 88 Forsyth St., S. W., Atlanta, Ga.; Atlanta Store, C. R. Mitchell, Mgr., 88 Forsyth St., S. W., Phone Walnut 5915, Atlanta, Ga.

**ROY & SONS, B. S.**, Worcester, Mass. Sou. Office, Greenville, S. C., John R. Roy, Representative.

**SACO-LOWELL SHOPS**, 60 Batterymarch St., Boston, Mass. Sou. Office and Supply Depot, Charlotte, N. C.; Walter W. Gayle, Sou. Agent; Atlanta, Ga.; John L. Graves and Miles A. Comer, Selling Agents; Greenville, S. C., H. P. Worth, Selling Agent.

**SEYDEL CHEMICAL CO.**, Jersey City, N. J. Sou. Rep., Harold P. Goller, Greenville, S. C.; Alexander W. Anderson, 10 Milton Ave., Edgewood, R. I.

**SEYDEL-WOOLLEY & CO.**, 748 Rice St., N. W., Atlanta, Ga.

**SLAYSMAN CO., THE**, 813 E. Pratt St., Baltimore, Md.

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**SOCONY-VACUUM OIL CO., Inc.**, Southeastern Div. Office, 1602 Baltimore Trust Bldg., Baltimore, Md. Warehouses: Union Storage Warehouse Co., 1000 W. Morehead St., Charlotte, N. C.

**SONOCO PRODUCTS CO.**, Hartsville, S. C.

**SOUTHERN SPINDLE & FLYER CO.**, Charlotte, N. C.

**STALEY MFG. CO., A. E.**, Decatur, Ill. Sou. Offices, 1710 Rhodes-Haverty Bldg., Atlanta, Ga.; Wm. H. Randolph, Jr., Sou. Mgr., L. A. Dillon, Asst. Sou. Mgr., 812 Montgomery Bldg., Spartanburg, S. C.; Geo. A. Dean, Reps., W. T. O'Steen, Greenville,

S. C.; H. F. Taylor, Jr., Monroe, N. C.; John T. Higginbothem; H. A. Mitchell, Birmingham, Ala.

**STANDARD-COOSA-THATCHER CO.**, Chattanooga, Tenn. Sales and Executive Offices, Lafayette Bldg., Philadelphia, Pa. Sou. Reps., W. S. Lawson, care Standard-Coosa-Thatcher Co., Chattanooga, Tenn.; J. P. Rickman, care Standard-Coosa-Thatcher Co., Chattanooga, Tenn.; N. P. Murphy, Guilford Bldg., Greensboro, N. C.

**STEEL HEDDLE MFG. CO.**, Main Office and Plant, 2100 W. Allegheny Ave., Philadelphia, Pa. Greensboro Office, Guilford Bank Bldg., Greensboro, N. C. C. W. Cain, Greenville Office and Plant, Greenville, S. C.; J. J. Kaufmann, Jr., Asst. Vice-Pres. and Mgr. of Southern Divisions; Davis L. Batson; Sam Zimmerman, Jr.; Henry Goodwin, Atlanta Office and Plant, Box 1496, Atlanta, Ga.; H. Raftord Gaffney, Barney Cole, Vernon A. Graff, Spinning and Twister Ring Division, Ralph Ragan, Southern Shuttles, Inc., Greenville, S. C. (subsidiary), Louis P. Batson, Pres.

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**STERLING RING TRAVELER CO.**, 101 Lindsey St., Fall River, Mass. Sou. Rep., Geo. W. Walker, P. O. Box 1894, Greenville, S. C.; D. J. Quillen, P. O. Box 443, Spartanburg, S. C.

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**TEXAS CO., THE**, New York, N. Y. Dist. Offices, Box 901, Norfolk, Va., and Box 1722, Atlanta, Ga. Bulk Plants and Warehouses in all principal cities. Lubrication Engineers: P. C. Bogart, Norfolk, Va.; D. L. Keys, Richmond, Va.; W. H. Goebel, Roanoke, Va.; G. W. Wood, Goldsboro, N. C.; W. P. Warner, Greensboro, N. C.; H. L. Marlow, Charlotte, N. C.; J. S. Leonard, Greenville, S. C.; W. N. Dulaney, Chester, S. C.; L. C. Mitchum, Atlanta, Ga.; A. C. Keiser, Jr., Atlanta, Ga.; J. G. Myers, Birmingham, Ala.; W. H. Mandy, Birmingham, Ala.; P. H. Baker, New York, N. Y.

**TEXTILE-FINISHING MACHINERY CO.**, Providence, R. I. Sou. Office, Johnston Bldg., Charlotte, N. C.

**TEXTILE SHOP, THE**, Franklin St., Spartanburg, S. C. E. J. Eddy, Sec. and Treas.

**TIDEWATER ASSOCIATED OIL CO.**, 17 Battery Place, New York City. Carolinas Rep., R. H. Mariner, 122 S. Blvd., Charlotte, N. C.

**UNIVERSAL WINDING CO.**, Providence, R. I. Sou. Offices, Charlotte, N. C., Atlanta, Ga. Textile Warehouse Co., 511 Rhett St., Greenville, S. C.; South Atlantic Bonded Warehouse Co., Greensboro, N. C.; New South Express Lines, Columbia, S. C.; Terminal Storage Corp., 317 N. 17th St., Richmond, Va.; Taylor Transfer Co., 102 Boush St., Norfolk, Va.

**SOLVAY SALES CORP.**, 40 Rector St., New York City. Sou. Branches: 212 S. Tryon St., Charlotte, N. C.; H. O. Pierce, Mgr.; Earl H. Walker, Earl K. Arthurs, and Hugh Causey, Salesmen; American Bank Bldg., New Orleans, La.; C. O. Kingsbury, Mgr.; W. L. Moise, Salesman. Sou. Plant, Solvay Process Co., Baton Rouge, La.

**U S BOBBIN & SHUTTLE CO.**, Lawrence, Mass. Sou. Plants, Greenville, S. C.; Johnson City, Tenn. Sou. Reps., E. Rowell Holt, 208 Johnston Bldg., Charlotte, N. C.; M. Ousley, P. O. Box 616, Greenville, S. C.; D. C. Ragan, High Point, N. C.; A. D. Roper, Johnson City, Tenn.

**U. S. RING TRAVELER CO.**, 159 Aborn St., Providence, R. I. Sou. Reps., William W. Vaughan, P. O. Box 792, Greenville, S. C.; Oliver B. Land, P. O. Box 158, Athens, Ga.; Torrence L. Maynard, P. O. Box 456, Belmont, N. C.

**VEEDER-ROOT, Inc.**, Hartford, Conn. Sou. Office, Room 231 W. Washington St., Greenville, S. C.; Edwin Howard, Sou. Sales Mgr.

**VICTOR RING TRAVELER CO.**, Providence, R. I., with Sou. Office and Stock Room at 173 W. Franklin Ave., P. O. Box 842, Gastonia, N. C. Also stock room in charge of B. F. Barnes, Jr., Mgr., 1733 Inverness Ave., N. E., Atlanta, Ga.

**VISCOSE CO.**, Johnston Bldg., Charlotte, N. C., Harry L. Dalton, Mgr.

**WHITIN MACHINE WORKS**, Whitinsville, Mass. Sou. Office, Whitin Bldg., Charlotte, N. C.; W. H. Porcher and R. I. Dalton, Mgrs.; 1317 Healey Bldg., Atlanta, Ga. Sou. Reps., M. P. Thomas, Charlotte Office; I. D. Wingo and M. J. Bentley, Atlanta Office.

**WHITINSVILLE SPINNING RING CO.**, Whitinsville, Mass. Sou. Rep., H. Ross Brock, LaFayette, Ga.

**WINDLE & CO., J. H.**, 231 S. Main St., Providence, R. I.

**WOLF, JACQUES & CO.**, Passaic, N. J. Sou. Reps., C. R. Bruning, 306 S. Chapman St., Greensboro, N. C.; G. W. Searell, Box 102, Lenoir City, Tenn.

## Visiting The Mills

(Continued from Page 39)

two sons, and as fine a trio as ever worked together.

"Edna" is a wonderful old "girl" and looks much better than she did when I first met her in 1912 or 1913. Probably the Pipkins were not her guardians at that time. I've forgotten who was.

W. Lexie Davis, formerly of Proximity, Greensboro, where he was trained from A to Z, is now superintendent here, and we wish for this good friend every success. He has a fine group of overseers.

R. L. Hulsey, overseer carding; W. J. Conner, overseer spinning; J. L. Wofford, overseer weaving; H. R. Stone, overseer cloth room; A. W. Way, master mechanic.

Reidsville is a nice town with a big tobacco market and cigarette factories, one hosiery mill, and one of the Burlington Rayon Mills. Consequently, there is a splendid weekly payroll and splendid business opportunities for people with vision.

## ROCKINGHAM, N. C.

Entwistle Mfg. Co.

Talk about fine, friendly people—Rockingham is full of them, and they are as numerous in the mill villages as in the town proper.

Entwistle Mills No. 1, where R. C. Heywood is superintendent, H. P. Cannon, carder, Ben T. Parker, second hand, W. W. Harris, spinner, D. A. Williams, second hand, H. G. Bunn, weaver and Paul J. Bell, master mechanic, is close in town and an ideal mill and village.

Was sorry to learn of the serious illness of Mrs. H. G. Bunn, wife of the weave room overseer.

J. C. Faulkenberry, section man, bids fair to go higher in textiles.

The work seems to be going nicely and some new buildings are going up.

Mr. Bell, master mechanic, keeps things lovely with his ready wit. One never knows what he'll do or say next. The product of this mill is white goods.

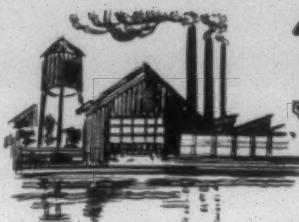
### Entwistle Mill No. 2

Here's where the well known John A. McFalls is superintendent. He has often been called "the silver-tongued orator" of the Southern Textile Association. Mrs. McFalls is herself a born leader and is active in Sunday school and club work among the girls.

At this mill many styles of goods are made in various weights and gorgeous colors. It certainly takes experience to get out this grand array of lovely goods.

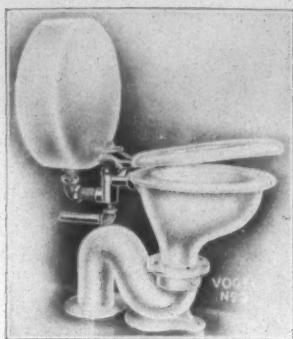
P. A. Calvert is carder and spinner; Sam T. Enoddy, weaver; J. R. Ephland, cloth room; R. S. Waldrip, shipping; J. C. McNeil, dyer; D. A. Brannon, designer.

It is always a joy to visit these mills where Mr. Wm. Harry Entwistle is the beloved general manager and vice-president; Mr. Geo. P. Entwistle is president and Mr. G. M. Bowes, secretary.



*This...*  
**VOGEL**  
PATENTED

*Number 5*  
is the Mill and  
Factory Closet



Designed for the hard and continuous wear of mill, mill village and factory use, their economy in water requirements and freedom from upkeep cost make **VOGEL** No. 5 Closets the

right closets for every installation, large or small. Simple in construction, long in life, they have proved their worth in thousands of mills and mill villages and factories everywhere.

Can be made semi-frost-proof by use of No. 1 valve.

Sold only through wholesalers of plumbing supplies.

**JOSEPH A. VOGEL COMPANY**  
Wilmington Delaware



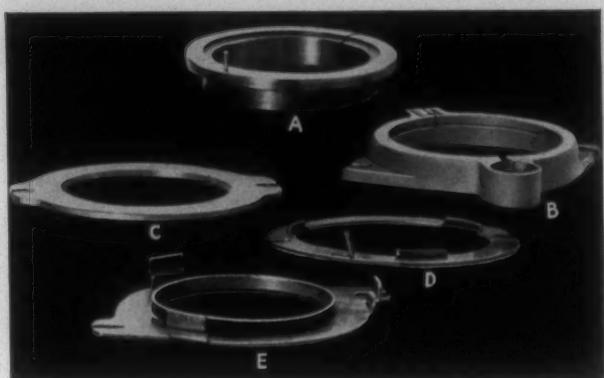
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**VANDERBILT**  
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PARK AVENUE at 34th ST., NEW YORK



A. Cast iron holder with pin traveler cleaner.  
B. Die cast holder for Eadie self-lubricating ring.  
C. Brass holder for band ring.  
D. Pressed steel holder with traveler cleaner.  
E. Pressed steel holder for bar traveler ring.

**Ring Holders by Ring Makers**

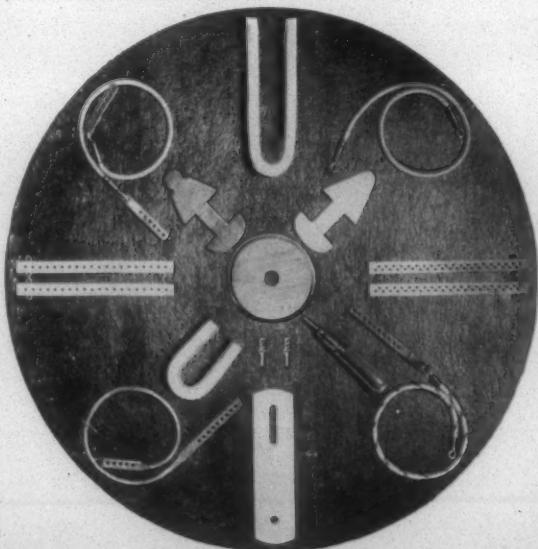
In addition to producing more than 1,000 styles and sizes of rings, we make all types of ring holders. A definite advantage which you gain in holders manufactured by a ring MAKER is the assurance of correct fit and size. Samples gladly sent. (If your work requires special designs, we cooperate in working them out.)

**WHITINSVILLE (MASS.)**

**SPINNING RING CO.**  
Makers of Spinning and Twister Rings since 1873

Southern Representative: H. ROSS BROCK, Lafayette, Georgia  
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# Quick Indexes to Quality...

in the

Veeder-ROOT  
2-3 PICK COUNTER



The quality of the material, workmanship and finish that goes into these shafts is an accurate index to Veeder-Root quality and wearability... throughout every part of every 2-3 Pick Counter.

And this standard... built on 35 years of experience in making more than 600,000 long-lived mechanisms... is your "performance-bond", your guarantee of top value in every Veeder-Root Pick Counter you buy. Call in the Field Engineer from the nearest office below... he'll show you how to get out of 2-3 Pick Counters *all the extra service* that's built into them.

WATCH FOR  
NEXT MONTH'S FEATURE IN  
THE QUALITY INDEX

Veeder-Root

VEEDER-ROOT 2-3 PICK COUNTER

V

SOCIAL SERVICE 40